of America

Motor Age

Vol. 1. No. 24 JUNE 12, 1902 5 Cents

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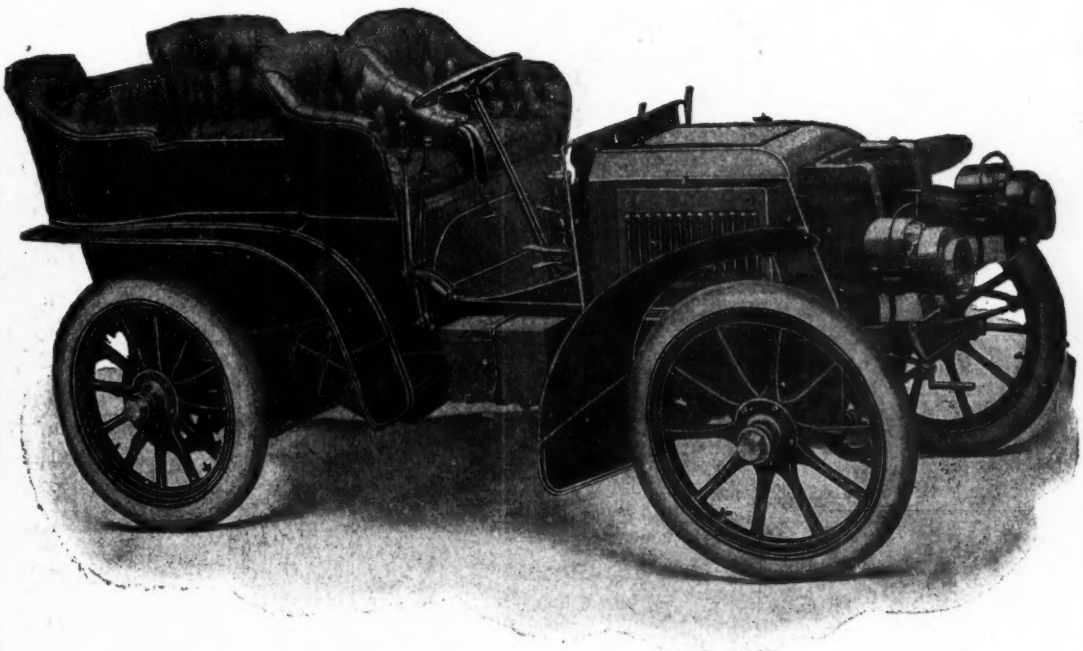

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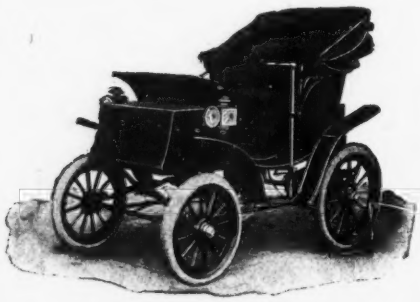

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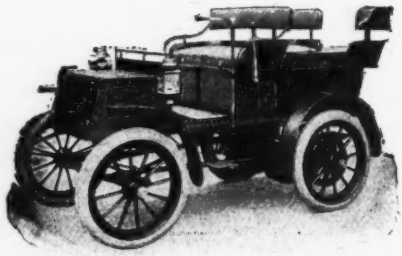

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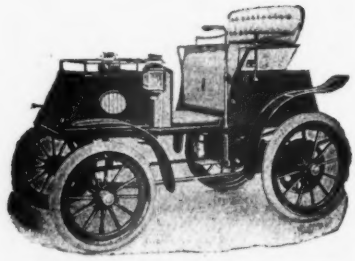

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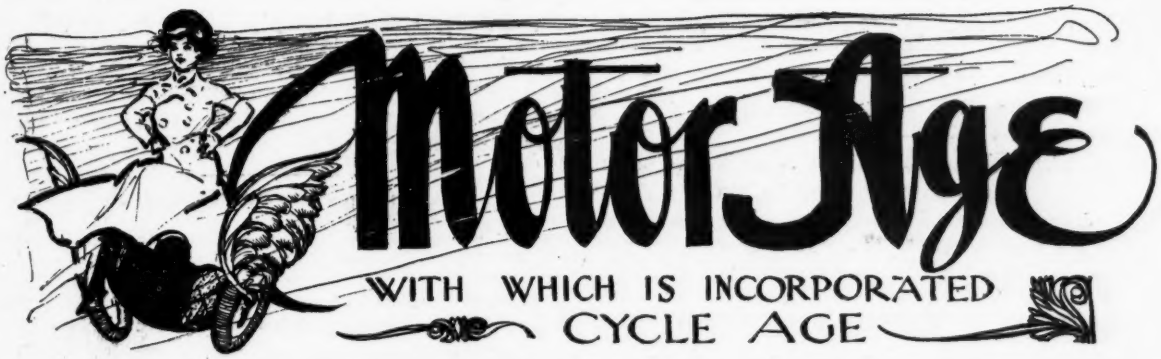

VOL. 1. NO. 24. CHICAGO, JUNE 12, 1902. $2.00 PER YEAR

RULING ASSOCIATION ISSUES A WARNING

First Refusal of a Permit for Race Meet—A Chat with Percy Owen—Registration of Racing Cars Proposed—Reeves Suggests Pursuit Races

New York, June 8.—Having assumed control of racing the American Automobile Association, through its race committee, announces that participation in unlicensed meets will result in disqualification from all A. A. A. races. The announcement was first made warning members of A. A. A. clubs, particularly against engaging in outlaw contests. This was followed by a ruling that the prohibition extended to outsiders as well. Rule XVII covers both cases clearly. It reads:

"If any one races at any unorganized (meaning, of course, 'unlicensed') meeting he is disqualified for all races to which these rules apply."

The emphasis placed on this rule at present arises from a refusal to grant certain promoters announcing themselves at the National Automobile Racing Association a license for a meet at Brighton Beach, June 21, Invstigation did not disclose, says the committee, a situation warranting the issuance of a license. Though the name "National Automobile Racing Association" was used the promoters using it had and have no connection with the association of the same name organized by W. K. Vanderbilt, Jr., and his associates, which promoted races at Newport last summer. Further, the promoters announced in their entry blanks that the races would be run under A. A. A. rules without having been authorized so to do. A. A. A. members are also warned not to allow their cars to be raced at unlicensed meets under the same penalty.

Secretary Butler, of the A. A. A., says the association has no intention of freezing out any individual promoters, when investigation shall prove satisfactory and acceptable.

The L. I. A. C. will run a race meet at Brighton Beach on Aug. 23.

* * *

Percy Owen says that a central track racing circuit is in process of formation. Being close to Alexander Winton, as his New York representative, he probably speaks by the card and has in mind the plans of Detroit, Toledo and Cleveland promoters. In a talk with a MOTOR AGE man Mr. Owen touched on another speed topic of interest.

"It must not be forgotten that the foreign records were made on specially built racing machines," said he. "On the other hand our American records are held almost entirely by ordinary stock vehicles. For instance the Winton that made for me my American mile and kilometer record was merely the demonstration car I took from the station that day. It was, by the way, the third Winton touring car turned out from the factory. That same vehicle also won the Roslyn Hill climb and was a blue ribbon winner in the L. I. A. C. run."

* * *

Secretary Butler, of the A. A. A., says a registration scheme for all racing cars is under consideration by the association. This will insure a proper investigation of any vehicle that seeks to compete in races. It is in the line of the registration of jockeys in horse races, athletes in athletic games and bicyclers in cycle races.

* * *

A suggestion is made by Al. Reeves, secretary of the N. C. A. Board of Control, that pursuit races on the same plan as the Australian contests in vogue at bicycle meets would make most practicable races for track purposes. He says:

"The idea calls for two or more automobiles to start from equi-distant points around the track and chase one another. Just as soon as a carriage has caught the one in front of it, that car is declared out of the race, and it remains for the winner to go on and catch the next man. The machine to catch all others is the final winner; the last machine caught receives the second prize and so on. Such an arrangement would be fair to all contestants, although sometimes it might compel a car to travel a longer distance than half the track in order to secure a victory. It is needless to say that the pursuit plan of riding would be fair to every one. It would enable the contestant to show his skill on the oval, and the machine to demonstrate its power."

RADICAL CHANGES ARE IN PROGRESS

Automobile & Cycle Parts Co. Buys and Sells Properties—Pope, Coleman and Garford Join with Other Big Men in a Number of Enterprises

Cleveland, O., June 9.—Important changes are being made in the affairs of the Automobile & Cycle Parts Co. A change of name will probably be announced some time in the near future, but the new cognomen has not yet been decided upon. The sheet steel mill heretofore located at South Chicago is to be removed to Elyria, O., and the business will be conducted as a separate organization. The Columbia Steel Co., as it will be known, has been incorporated by M. B. Johnson, A. L. Garford, Alfred Ely, Col. A. A. Pope and R. L. Coleman. The change is made because the company is rapidly branching into new fields and at present only about thirty per cent of the output is used by the parent company. Superior shipping facilities induced them to go to Elyria. The main plant will be 400x80 feet, on a site adjoining the Lake Shore, B. & O. and C., L. & W. railways. A hot roll mill will probably be added later.

The company has sold out its golf goods business, heretofore conducted from the Westboro (Mass.) factory to a new concern to be known as the Worthington Mfg. Co. This company has bought up the business of the Fay Mfg. Co., makers of metal invalid chairs, tricycles, etc., and will conduct both lines from the Fay factory at Elyria, formerly a bicycle factory. George Worthington, of Cleveland, and A. L. Garford are at the head of the concren. Sam Leonard, the old bicycle saddle man, will be general manager of the factory.

The Automobile & Cycle Parts Co, announces that after July 1 it will handle the bicycle and automobile tubing manufactured by the Shelby Steel Tube Co. Tubing for other purposes will be sold as heretofore. The Cleveland concern has also bought out the business of the Cleveland Pulley Co., a manufacturing concern heretofore presided over by A. L. Moore, of the Cleveland Machine Screw Co.

A. L. Moore's new company previously mentioned in these columns has been incorporated as the Cleveland Automobile Co. Incorporators: A. L. Moore, M. B. Johnson, H. H. Johnson, H. N. Ensworth and J. F. Russell. Capital stock, $125,000. The company has completed the first sample of a neat gasoline runabout. It is the intention of the company to manufacture only the six horsepower engine in its own factory. All other material will be purchased. Contracts have been closed with Theodore Kundtz for 100 bodies and with the Automobile & Cycle Parts Co. for 100 sets of running gears. The engines will be built in the factory of the Cleveland Machine Screw Co., a portion of which will be utilized by the company for the present. If the venture proves a success a large factory wil be built.

The Stein Double Cushion Tire Co., of Akron, has commenced operations in its new factory, and is now producing its new cushion tire for bicycles, automobiles and carriages. The company starts with bright prospects, having many orders on hand.

M. L. Goss, of the Baker Motor Vehicle Co., says that the unfortunate Baker racer will be rebuilt and will probably be given tests to determine its full speed, but never again will it be used on a rough public highway lined with spectators.

LESSON IN COST OF OPERATION

New York Test Shows American Machines in Favorable Light—Records of Twenty-Eight Carriages

Perhaps the most important demonstration to be credited to the late endurance test of the Automobile Club of America was that of the extraordinarily low cost, for fuel, of operation of an automobile, regardless of its form of power. The material furnished by the officials of the club since the last issue of MOTOR AGE, includes a list of the amount of gasloine used by each machine which finished without a penalized stop and this, coupled with information previously obtained, enables us to ascertain the exact cost per passenger of each vehicle. It might have been expected that from the standpoint of economy the gasoline would outshine the steam carriage—indeed it would have been deemed incredible, by most people, before the start, that the best of the steamers could have finished ahead of the poorest of the gasolines. Two steamers, both of the same make, did finish ahead of gasoline carriages, however, and carriages, too, which are by no means second rate.

Twenty-eight vehicles secured the coveted award. Of these seventeen were gasoline and eleven steam; six French and twenty-two American. The cost per passenger, per mile, in fractions of a cent, for gasoline vehicles was .27833; for steam carriages, .6502, or considerably more than double that of the gasolines. The French

VEHICLE.	Horsepower	Weight	No. of passengers	Consumption of gasoline, gallons	Consumption of water	Total cost of gasoline, at 12c per gallon	Cost of gasoline per passenger, per mile, in fractions of 1 ct.
Mors	12	....	5	7	....	.84	.168
Packard	12	2,200	4	6⅛	....	.73½	.18375
Searchmont	8	2,500	4	7	....	.84	.21
Richard	12	1,200	4	7	....	.84	.21
Pierce	3½	700	2	4	....	.48	.24
Richard	12	1,200	4	8	....	.96	.24
Darracq	9	1,250	2	4⅛	....	.49½	.2475
Long Distance	7	1,200	2	4¼	....	.51	.255
Searchmont	8	2,500	4	8½	....	1.02	.255
Searchmont	8	2,500	4	8¾	....	1.05	.2625
Darracq	9	1,250	2	5	....	.60	.3
Autocar	8½	1,200	2	5	....	.60	.3
Haynes-Ap.	6	1,950	2	5	....	.60	.3
White	6	1,400	2	5¾	6	.69	.345
De Dion	4½	850	2	6	....	.72	.36
Knox	6	1,400	2	6	....	.72	.36
White	6	1,400	2	6½	6	.78	.39
Knox	6	1,400	2	7	....	.84	.42
Knox	6	1,400	2	7	....	.84	.42
Lane	10	1,650	4	15¾	93.25	1.89	.4725
White	6	1,400	2	9	9.75	1.08	.54
Locomobile	3½	1,250	2	10	89.25	1.20	.6
Overman	4½	1,500	2	10½	84.75	1.26	.63
Grout	4½	1,000	2	12¾	113.15	1.53	.765
Prescott	4½	1,300	2	13¼	85.5	1.59	.795
Locomobile	3½	985	2	13½	114.75	1.62	.81
Prescott	4½	1,300	2	14	79.5	1.68	.84
Locomobile	3½	1,250	2	16	103.5	1.92	.96

made a slightly better showing than the American, the cost per passenger, per mile, being .2542 and .29148, respectively. But if weight were taken into consideration the Americans scored heavily. Weight, in a properly designed carriage, means comfort and stability. It may be assumed that no maker adds weight without reason and it is fair, therefore, in making a comparison of this kind, to take it into consideration. The weight of one French carriage was not furnished. The average weight of the other five was 1,150 pounds, and the average cost

A. R. Pardington, Chairman of the Press Committee of the Long Island Automobile Club.

per passenger, per mile, was .2715. American cars averaged 1,723 pounds and the cost was .29145, showing an immense advantage in economy for the home product. The most remarkable average, among makes which secured awards for three entries, was that of the Searchmont, whose average cost was .2625. The Knox average was .4, the White .425 and the Locomobile .79.

Exclusive of the White, whose water consumption averaged a fraction over 7 gallons for the entire journey the average consumption of water of eight steamers was 95.29 gallons, or a fraction over .90 gallons per mile.

The course was by no means easy. The run, on the whole, was a fair sample of what may be expected, on country runs, except where roads are extraordinarily rough or hilly. The figures taken may, therefore, be accepted as the most reliable yet secured of the cost of operation of both classes and the water requirements of steam carriages.

Long Island Club's Chief Hustler

A. R. Pardington, whose photograph is herewith produced, is one of the strenuous men of the hustling Long Island Automobile Club. As a governor his desire for work is unsatiable. As press agent he has done much to win for his club the wide publicity it enjoys. Mr. Pardington is courteous to the newspaper men and seems to have a nose for news. No enterprise this active club untertakes fails to rest to a considerable extent on his shoulders and he finds time to do all this outside of his manifold duties as head of the contract department of the New York and New Jersey Telephone Co., a great corporation. Incidentally he is one of the governors of the A. A. A. and a member of its race committee. In fact the general verdict in the club, in automobile circles at large and among the newspaper men particularly is "Pardington is all right." The cry on the newspapers' end of his wire much of the day at his office and frequently at night at his residence is "Hello! Give me Mr. Pardington." In fact Mr. Pardington, given ten minutes to do it in, can cover the entire Long Island automobile world for every member of the Metropolitan press and for MOTOR AGE, too.

Coming to Chicago's Endurance Run

W. C. Rands, of Detroit, who now owns the racing machine built by Henry Ford, and on which that gentleman defeated Winton, has promised to bring it to Chicago on the occasion of the Chicago club's endurance run. He will not enter the run but will go over the course and, if arangements can be made, will be willing to make a speed trial straightway. He has driven the car a half mile in 26 1-5s at eDtroit. Another big car will be in Chicago at the same time and will take part in the contest. It is the touring car recently finished by the St. Louis Motor Carriage Co. Mr. French, while driving a MOTOR AGE man about the city last week, assured him of his intention to make the journey. The committee in charge of the event reports that several entries have been received. It is expected that at least fifty carriages will start. Entries will close July 7 but belated contestants may enter, by paying an additional fee of $5, as late as July 9.

Cannon Demonstrates Speed of His Racing Machine

Among the entries for the Staten Island trials was a steam vehicle made by a gentleman named Cannon, a Harvard student. He was unable to make a trial, however, owing to the accident to the Baker machine, and went away very much disappointed, having anticipated no difficulty in lowering the record for steam vehicles materially. Indeed, it is reported that on the road near Cambridge he had driven the machine so fast as to make the record breaking a matter of certainty. The machine was of his own construction. He made good his claims to speed at Charles River Park, Boston, on June 4 by driving his vehicle five miles in 8:26 2-5, lowering the American record for a circular track.

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The editor will be glad to receive communications for publication. They must be accompanied by the names and addresses of senders, which will not be used if request be made to that effect. Contributions will not be paid for unless accompanied by notice that payment is expected.

Subscription, Two Dollars a Year. - - Six Months, One Dollar

THE STATEN ISLAND TRIALS.

Without desire to cast reflections on the club which promoted or the men who took part in the late speed trials at Staten Island MOTOR AGE believes it to be the duty of the automobile press to take such cognizance of the unfortunate occurrence as may prove beneficial to the sport and the industry. As was anticipated there have been numberless surmises as to the cause of the accident, all, however, based on guess work. Nothing has come to light to indicate conclusively the basis of the trouble and there is therefore nothing to add to the conclusions drawn last week. It is the duty of every man connected with the industry, in discussing the matter, regardless of the style of machine he may represent, to impress on his hearer that the vehicle which caused the trouble is not an automobile, in the common understanding of the word. The contestants were all bent on attaining reputation for themselves by some extraordinary display. They had constructed, for the purpose, racing machines—not automobiles, although self propelled, but mere machines designed to travel speedily and without regard to their ultimate fate. So far as may be possible the public should be given to understand the difference. The accident will do less harm to the industry if an effort is made to force the public to understand the real conditions.

Another point to be remembered is that the public, thoughtlessly and through ignorance, exposed itself to unnecessary risk. The control of an automobile at high speed is at all times dependent on the skill, nerve and intelligent understanding of the condition possessed by the operator. It is also dependent on everything about the machine acting exactly as it is designed to act. The slightest departure from either of these conditions means danger. Yet there stood hundreds of people, at a point directly in front of a dangerous turn in the road, where the slightest deviation, the slightest thing wrong with man or machine meant a plunge into their midst.

The public has been educated to believe that the operator has absolute control of his vehicle. So it proved in all the earlier trials and so he has under ordinary circumstances. The people had become overconfident. The thought that a vehicle weighing a ton or more, traveling at 100 feet a second, was as dangerous as a cannon ball did not seem to strike them. A few of the more thoughtful took advantage of natural slopes, the hotel and other points of safety. The club had called attention to the danger, had policed the course splendidly and had done all that could reasonably be expected to preserve the spectators and competitors from harm. And above all it had ordered that no one be allowed on the side of the road on which the smash occurred and had provided 180 policemen to enforce the order.

Unfortunately the club's course since has not been as well balanced as before the accident. The impression prevails that the club by its precipitate action following the accident was guilty of an eggregious blunder. Its announcement of its determination not to hold further races on the road is likely to produce a disastrous effect on the public mind. For months the newspapers have made sensational announcements of automobile accidents. Small happenings have been exaggerated to such an extent as to indicate that automobilists are a wanton, careless, selfish class of men, determined, at all hazards, to speed over the country roads at 60 miles an hour. No matter how foolish these stories are it is necessary to prove that the automobile is not, necessarily an engine of destruction. The public may accept the club's action as an admission of the contrary.

Was automobile racing any more dangerous after than before the event? Were not the members as well aware before, as after, that an unmanageable machine would inevitably kill someone among the spectators? It seems to us that the duty of the club is to convince the public, as well as it may, that the automobile is a vehicle of utility and safety. To publicly admit that the club had made a mistake and to vote to hold no more races was as unnecessary as it may be harmful. The club had no more races in view. Nothing would have been lost by delaying action for a month or more.

The A. A. A. and the manufacturers' association, fortunately, looked at the matter with calmer judgment and were not swayed by hysterical demands or unreasoning sentiment. They remembered that accidents happen in every sport in which we engage and found no reason for precipitate action toward the suppression of events which are of importance to a splendid sport and a great industry.

EDISON'S BATTERY NEEDS REST.

Ever since the Edison battery craze took possession of the editorial rooms of some of the big dailies and enabled people who are students of electrical matters to ascertain how little attention those same dailies pay to ascertaining facts before publishing sensational nonsense, we have been deluged, from time to time, with fictitious reports of the wonders accomplished by

Thomas Edison in the production of a storage battery which is to revolutionize the automobile business and do such wonders in other directions as have never before been thought possible. MOTOR AGE has, on two occasions, called attention to the injurious effects of these foolish articles and urged people in the automobile trade to lose no opportunity to offset them by stating the facts to anyone who may be interested. Makers of electric vehicles, no doubt, have felt the effect long before this. They have been told by prospective buyers that they will "wait until the Edison battery is ready." Some of the people have swallowed the fish stories told them by the sensational dailies and perhaps they are not to be blamed, for Edison has previously been responsible for such remarkable discoveries that the American public may be excused for believing almost anything which may be said about his accomplishments. The facts are that, commercially, there is no Edison battery; and that the battery promised is neither lighter nor cheaper than the batteries commonly used. We believe it is a correct statement that they will be much more expensive. What they may accomplish in actual service has yet to be proved. We are assured by a gentleman associated with Edison that the batteries will do all that has been claimed for them "by Mr. Edison" —a very different thing to that which has been claimed for them by the press. Edison disclaims responsibility for the statements which have been made. It is true that he made a test of machines fitted with his batteries in and about Orange, N. J., recently but it is not true that the batteries have been tested—at least so far as has been announced with authority—sufficiently to warrant any extravagant claims for them.

No matter what the Edison experiments may develop in the long run we are still a long way from the day when his battery will need to be considered as a commercial commodity. No arrangements have been made to manufacture it commercially. It is not, and may not be for years, a factor in the automobile business. Let it rest until it is or until the inventor is willing to make a statement concerning it.

One of the manufacturers of electric vehicles calls attention in this issue to the folly of fostering the belief in something which has yet to be demonstrated, to the injury of the business of makers who have something well tried and of unquestioned merit, to offer the public. We join with him in the hope that from this time forward we shall hear nothing of the Edison battery which cannot be substantiated and that the matter will be allowed to sleep until facts warrant further publicity.

NEW YORK TO CHICAGO TRIAL.

The greatest thing in automobile history was the British 1,000 miles trial. It was the first and supposed to be the most severe to which a large number of automobiles were ever subjected. As a matter of fact it was not nearly so severe as the Buffalo-Rochester trip but the world at large can never be expected to appreciate the hardships through which men and machines passed on that memorable occasion. Given decent weather the trip from New York to Chicago can be made with as little, and probably less, fatigue to machine and operator than the Rochester run. Its effect on the public mind and the glory it would reflect on the participants would be infinitely greater than those of any prior contest. Demonstration that an automobile may be relied on to travel from New York to Chicago at the highest rate of speed allowed by law would be, so far as the industry is concerned, one of the greatest advertisements it would be possible to obtain. MOTOR AGE suggested such a run a couple of weeks ago. It is now assured that a large number of members of the Chicago Club are in favor of seeking to co-operate with the New York, Rochester, Utica, Buffalo, Detroit and other clubs and the manufacturers' association in the promotion of the event. The matter will probably be discussed at a meeting of the club this week and it is not at all unlikely that steps will be taken to bring the matter to a head within a few weeks.

To Carry the San Juan Mail

San Juan, Porto Rico, May 30.—The contract for carrying the mail between San Juan and Ponce for 2 years from July 1, 1902, has been awarded to the Automobile Transportation Co. of Porto Rico, incorporated under the island laws. Two trips will be made daily; the night run is to be made in 10 hours and the day run in 9 hours. When the mail arrives late the postal department will impose fines unless the delay is brought about by a Providental cause. At first the following daily schedule will be followed although it is subject to change: Leave San Juan 9 a. m. and 8 p. m; arrive Ponce 6 a. m. and 6 p. m.; leave Ponce 9 a. m. and 7 p. m.; arrive San Juan 6 p. m. and 5 a. m. The company has deposited a $15,000 bond which may be forfeited in case the contract is not lived up to. The contract price is $12,000. The automobiles have been running across the island almost daily for several weeks and within the schedule time. The operators have acquired close familiarity with the road and consequently are able to make fast time with safety. The company has five wagons in constant service at present. For the mail special vans built for the service will be put on.

Common Sense Test for Commercial Purposes

Fresno, Cal., June 4.—The Fresno Home Packing Co. has bought of Gregory & Co. an Oldsmobile to use in traveling about the country buying fruit. To test the practicability of the machine for the purpose intended, the company will keep account of the expenses of running it for 6 months, comparing it with the cost of a team used for the same purpose. If the test proves in favor of the automobile, which it is believed it will, the company will buy three others, two of heavier make to be used in the sandy country about Selma. Mr. Gregory states that after a 1,000 mile test, the expense of operating does not exceed one cent a mile and has found no roads in this country that this machine will not travel. . . .

Vertical Two-Cylinder European Motor of 12 B. H. P.

BY L. B. ELLIOTT

The motor about to be described and illustrated is a modification of a French type which was used in a motor vehicle of English make, which took part in a recent English 100 mile endurance test. The vehicle went through without a stop, except a slight delay on account of an accident to a tire. Prior to this the vehicle had traveled over 6,000 miles without accident or breakdown.

The motor is 5 inches bore and 6 inches stroke, and has an internal compression of 4.06 atmospheres, and absolute pressure of 59.68 pounds per square inch, which is equal to 45 pounds per square inch, gauge pressure. Nothing has been changed about the motor with regard to dimensions or design, except to modify some of the peculiar and expensive constructions of different parts, which are so common to motors of French make.

From a mechanical standpoint this motor is exceedingly well designed in every detail. It is entirely enclosed, giving an absolute freedom from dust, and is simple, compact and powerful, giving 10 brake horsepower at 600 revolutions, and 12 brake horsepower at 750 revolutions.

The combustion chamber is cast integral with the cylinder and is partially water jacketed on the side next the cylinder. The motor is 27 inches high over all, and 33 inches long from outside of ignition case to the end of the crank shaft, and 18 inches wide over the feet of the crank chamber. The cylinder and valve chambers are made of high grade cast iron and the crank chamber of aluminoid.

Figure 1 shows an outside end elevation of the motor and a vertical cross section, through the cylinder and crank chamber. The piston, connecing rod and center bearing for the crank shaft are clearly shown and dimensioned as are the general dimensions of the cylinder and chank chamber which pertain to this view. Two sight feed pressure lubricators, with glass body 2½ inches in diameter, and oil capacity of 5 ounces, are attached to the cylinders by elbow brackets, which construction is far better and much to be preferred to the method so much in use in this country, of using a common pipe elbow, which is liable to work loose from the jarring of the vehicle, allow the lubricator to fall over, and probably break the glass or otherwise damage it.

An opening for a relief cock is shown at a point half way up the water jacket of the cylinder. This is better practice than placing a compression release cock in the top of the cylinder or the side of the valve chamber, as it is a rather hard matter to start a motor of this size without any compression on the charge. If the motor is to be turned over by hand at any time for examination the sparking plugs can be taken out readily, effecting the same purpose as the compression release cocks would do. Figure 2 shows a side view of the motor, half in elevation and half in vertical cross section through the center of the cylinder and crank chamber. It shows the construction of the combustion and exhaust valve chambers, and the exhaust valve operating mechanism. The valve opening in the exhaust valve chamber is 1¾ inches in diameter, and the shoulder which goes into the combustion chamber is 2⅜ inches outside diameter. The openings in the combustion chamber for both admission and exhaust valve chamber shoulders are 2⅝ inches diameter, and are cored out to this size so as to save machine work.

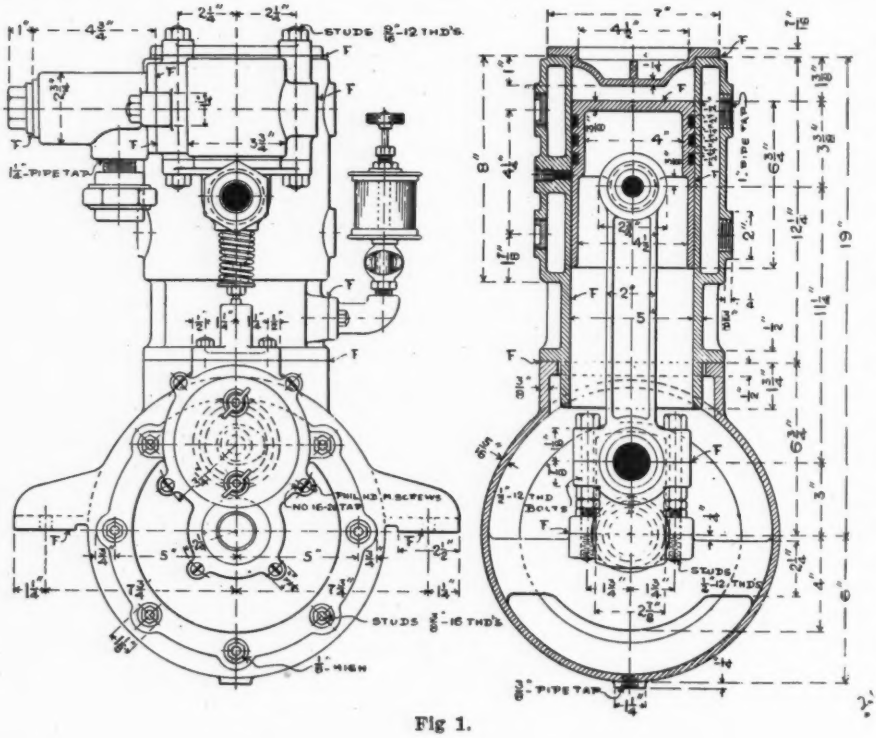


Fig 1.

The other views of the piston, wrist pin, connecting rod and crank shaft are here shown and plainly dimensioned. The two to one reduction gear and pinions are No. 10 diametral pitch, and the gears are 4 8-10 and 2 4-10 inches pitch diameter, with 48 and 24 teeth respectively. The width of face of the gears is ¾ of an inch, and the hubs of the

gears are 1¾ and 1 inch long, the short one going on the side of the crank chamber which has the ignition mechanism.

The nuts which go upon the threaded part at the end of the valve stems are ⅜ hexagon, tapped out to 7-16-14 threads, and holes should be drilled through both nuts and stems for the reception of 3-32 inch split pins, to prevent the nuts from working off. The springs for the admission valves should be No. 14 B. & S. gauge steel, 1 inch inside diameter, and 2½ inches long when light. The exhaust valve springs should be No. 10 B. & S. gauge steel and also 1 inch inside diameter and 2½ inches long when light. The springs should be oil tempered and piano wire should not be substituted on any account, as the heat will quickly take the temper out of that kind of springs, aside from the fact that they are more liable to breakage than a properly made oil tempered spring.

The keys shown in the crank shaft for the pinions of the two to one reduction pinions, are ⅜ of an inch wide and ¼ inch thick, while the other key shown in the crank at the right in the drawing is ⅜ of an inch square, and is for the fly wheel hub. The key on the extreme end of the shaft at the right is for the hub of the gear or sprocket, and should be ⅜ by ¼ inches, the same as the pinion keys. These keys should be equally in shaft and hub, that is, measured on the periphery of the shaft at the center of the key-way, not at the edge of the same.

No fly wheel is shown as that is left to the builder's judgment. It should be not less than 24 inches outside diameter and its rim should be 2½ inches wide and at least 3 inches deep and weigh not under 125 pounds. The threaded extension on the extreme end of the crank shaft is for a 1⅛ inch hexagon lock nut, ⅞ of an inch thick. A hole should be drilled through both nut and shaft for a 3-16 split pin. The bushings for the wrist pin, crank pin and crank shaft journals are of phosphor bronze and are fully dimensioned.

The connecting rod and the center crank shaft bushings must of course be split. This is best done after turning up with a fine slitting saw or cutter in the milling machine.

Figure 3 shows a plain or top view of the motor, half in full view and half in horizontal cross section, through the cylinder and valve chamber of the motor. The port between the cylinder and the combustion chamber is shown in Figure 2 and also in Figure 3 plainly. It is 1 inch high and 3¼ inches wide, straightway, without bend or contraction, so as to insure a free passage for the expanding gases. The admission valve and the threaded boss for the sparking plug bushing are also clearly shown and dimensioned. Bushings should be made of 1½ hexagon steel to fit in the 1½ inch 12 thread hole in the bosses on the combustion chambers. These can then be bored out and threaded to fit any desired make of spark plug.

The reason for bushing these openings is two-fold; first if the bosses were tapped directly for the sparking plugs, only one make of plug could be used, whereas if three or four sets of these bushings are carried along, each pair tapped for some one of the standard makes in use, and if plugs of the make or type used by the operator of the vehicle cannot be had right away, some other make of plug can in this manner be readily substituted, by putting the proper bushings into the threaded openings in the combustion chamber; secondly, there is always liability of the thread in the hole being injured, by screwing in the sparking plug too tightly, or trying to put in a wrongly threaded plug, thus putting the motor out of business, sometimes even until a new cylinder can be had, especially if there is not stock enough on the bosses to allow the holes to be drilled out and bushed. The cylinder heads or covers are held in place with 6⅜ inch studs. On account of the limited depth immediately over the port leading from the combustion chamber to the cylinder, the stud which

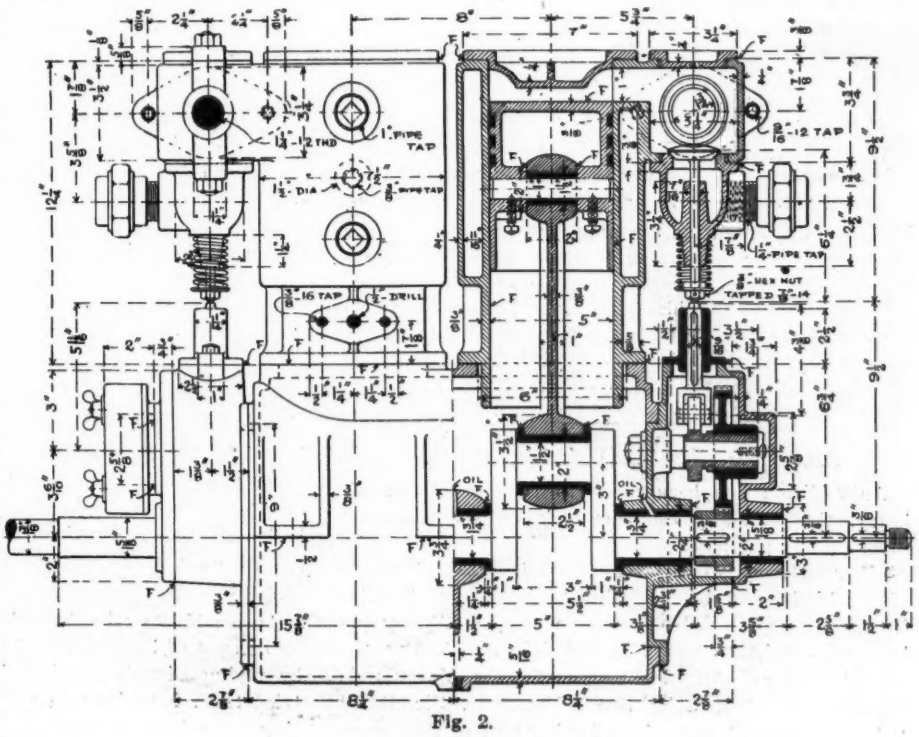


Fig. 2.

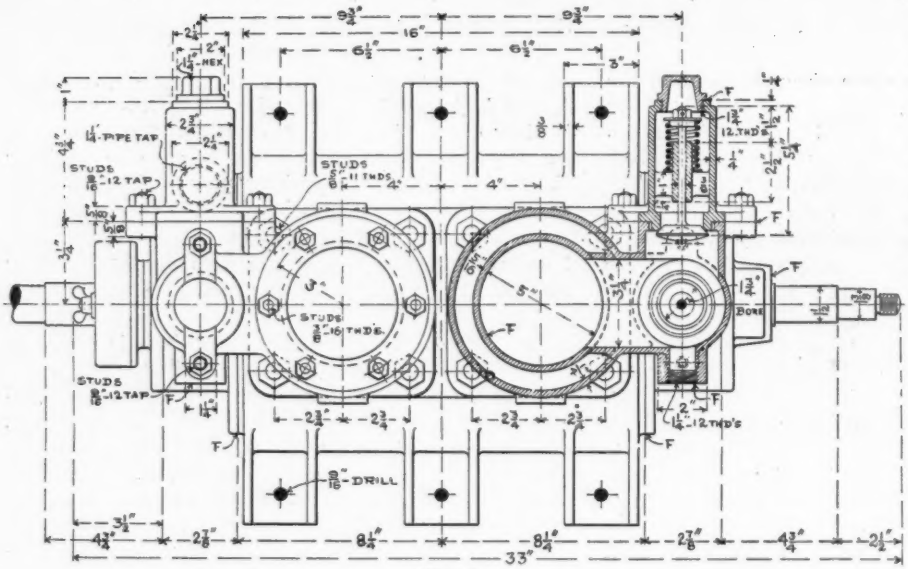


Fig. 3.

goes in there should have a ¼ inch thick lock nut put on, on its inside end, in the port opening. It will not suffice to put in five studs, and so do away with the lock nut. The distance across the port is too great to keep the cover gas tight under pressure. The valves and stems should be made from Bessemer steel forgings, and a large fillet left in the corner around the stem immediately under the head, of at least 3-16 of an inch radius. If this seemingly insignificant detail should be omitted, one of the valve heads may drop off some day, and if it happened to be one of the admission valve heads, and got mixed up with the exhaust valve, it would in all probability ruin both the exhaust valve and seat before discovered.

American Motor League Has a New Secretary

S. Wallis Merrihew, of 154 Nassau street, New York, had been appointed by the president, secretary of the American Motor League in place of Frank Egan, resigned. Merrihew is a man of experience in work of the kind required of him and hopes to be able to do a great deal toward increasing the membership of the league, interest in which has, unfortunately, been allowed to lag since the Chicago show.

Automobile Addition to Badminton Library

An addition has been made to the Badminton Library, the standard English work on sports of all kinds. It is published under the guidance of the Duke of Beaufort, one of the foremost advocates of sports of all kinds, and its contributors include authorities in all lines. The latest addition to the library is known as "Motors and Motor Driving." Among the contributors are Alfred Harmsworth, the Marquis de Chasseloup-Laubat, John Scott Montague, Sir David Solomons, Hon. C. S. Rolls and other men of note, some of them, by the way, noted for their fund of information on the technical side of the subject and whose writings are therefore worth attention. Starting with a brief history of the motor car the work runs through all branches of the subject, general utility, choice of a motor, dress, hygiene, motor car stables, technical matters, roads, points of law, clubs, literature, racing and automobile terms. The work is profusely illustrated both with mechanical drawings and interesting scenes and incidents. It is published in this country by Little, Brown & Co., of Boston, and should be added to every library of automobile literature.

Baker and Denzer Still Under Bonds

The troubles which beset Messrs. Baker and Denzer, as a result of the late catastrophe at Staten Island, have not yet ended. Although exonerated by the coroner's jury they have been held by a local magistrate on a charge of homicide, and have been required to furnish bail in the sum of $10,000 for Mr. Baker and $5,000 for Mr. Denzer.

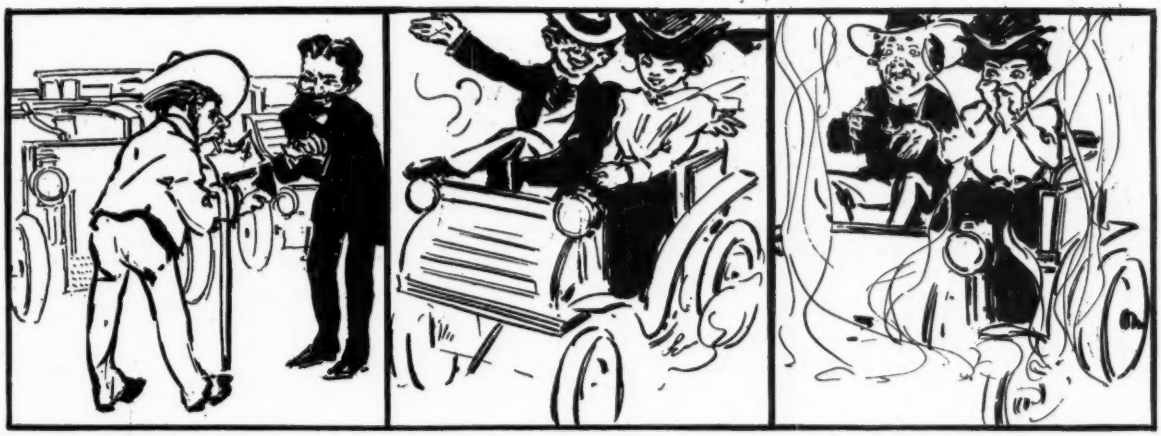
Serpollet's Car for Sale in America

Attention is called to the announcement in the advertising columns of this issue that the machine on which Serpollet made the marvellous record of a kilometer in 29 4-5s., at Nice, is for sale. A big price is demanded, of course, but it would not be surprising were some enterprising American to import the machine and place the records at his mercy. The price asked is $10,000, "or nearest offer."

Every owner or prospective owner of a gasoline carriage or motor bicycle will be interested in a booklet issued by the American Coil Co., of 30 Newton street, West Somerville, Mass., and known as catalogue No. 3. This book gives a lucid explanation on the causes of ignition troubles, drawings showing the electrical work needed on various engines and other information of interest.

Automobilists who have had trouble with dynamos on account of brushes would consult their own interests by trying Dixon's graphite brushes. Those who have tried them have been so pleased with the results that they never hesitate to recommend them to their friends.

LOVE IN AN AUTOMOBILE.



A society man with a mint of rocks
Fell in love with a stately maid,
But she loved him not, though at her feet
His heart and his wealth he laid.
At last he bought an automobile,
For this he heard it told
Brought Cupid's darts to feminine hearts
When they couldn't be touched by gold.

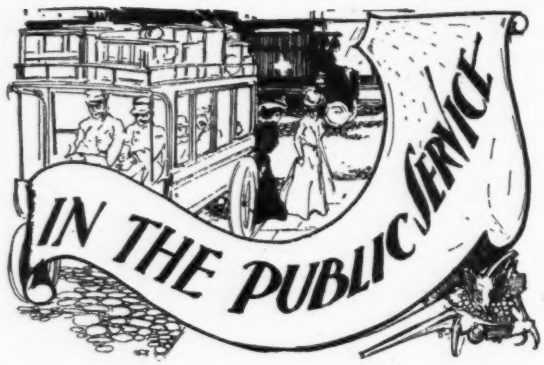
He took her to ride on a bright spring day,
Like a second Michael Roy,
And she smiled the smiles which are born of love,
And his heart was aflame with Joy.
His soul soared up to the skies above,
And he rode with an angel of light,
And the petty cares of sunshine affairs
Took precipitate fight.

Widely open his by-pass stood,
And down, down ran his steam.
The water glass which he should have watched
Was lost to love's young dream;
His fire burned on and his water was gone,
He was happy beyond a doubt;
Till a sickening smell like a breath from—well,
He'd burned his boiler out.

Rude the awakening to him,
Repairs were miles away,
And neither a house nor a soul in sight—
Not even a one-horse shay.
But down the distant stretch of road
An object hove in sight;
It came with the speed of a friend in need,
And his heart grew suddenly light.

An automobile it proved to be,
And then his heart grew sick,
For only one soul sat in the seat—
His rival, Anthony Dick.
The rival smiled. The maiden smiled.
She took the vacant seat,
And most unkind, a tow behind
Completed his defeat.

The rival's carriage was painted white,
White as an infant's hearse;
And hearse it was, for his hopes lay there
As dead as a spring-time verse.
He painted a sign when they got to town,
"This automobile for sale";
'Twas sold next day in the usual way,
And this is the end of the tale.

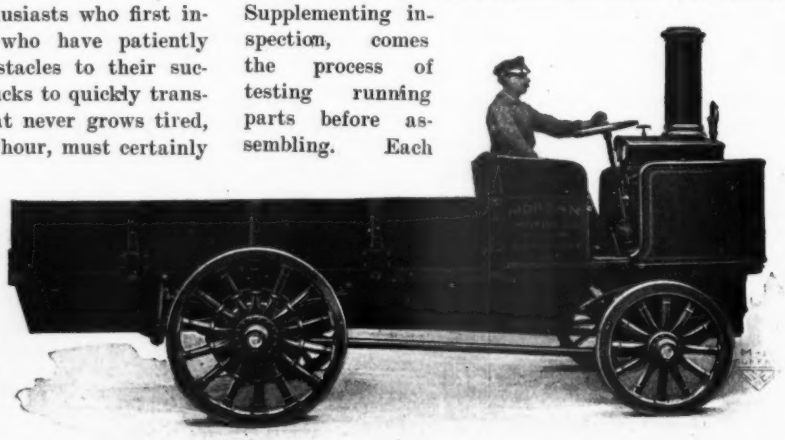


Much credit is due the few enthusiasts who first introduced automobile trucks and who have patiently labored to overcome the many obstacles to their successful use. The ability of these trucks to quickly transport heavy loads on a machine that never grows tired, that can hold its speed hour after hour, must certainly appeal to all.

The Morgan Motor Co. manufactures steam trucks which permit of any variation of speed up to 10 miles an hour.

The founder of the company, Mr. Morgan, has been connected with the motor vehicle industry for a long time, having commenced his connection therewith by investigating the industry thoroughly for Charles R. Flint. He was occupied for a year in this work, having nine men at his disposal to collect information. He left Mr. Flint to take charge as general manager of the Toledo factory of the International Motor Car Co., and, commencing at the beginning of January, produced 1,200 Toledo steam carriages in a year. During that time, however, he never lost sight for an instant of the possibilties of the heavy truck and studied carefully the details of both steam and gasoline vehicles. He is still retained as consulting engineer by the International company.

The Morgan company's factory is at Barber's Crossing, Worcester, Mass., on the Boston & Maine R. R. It is of the latest and most approved design and construction, with overhead crane and abundant light. It is the policy of the company to control all the special and exclusive features in its construction. In the choice of materials and accessories only the best and most suitable for each part is used. Inspection does not end with the purchase of the best raw materials, as the system extends throughout the works progressively. Supplementing inspection, comes the process of testing running parts before assembling. Each truck is then given a searching test of at least 100 miles. The final finishing varnish is applied and the truck becomes ready for shipment.



The Morgan Steam Truck.

The engine is, generally speakng, of the ordinary cross compound type, and cylinders being 3 inches and 6 inches, respectively, by 5-inch stroke. The pistons are fitted with two spring rings, such as are employed in all modern high-grade sationary engines. The crossheats are made of phosphor bronze, and their wearing surfaces are sufficiently large that they will run indefinitely. They are ground to their slides by hand. The connecting rods are made of nickel steel forgings with marine heads. The crank ends are provided with bronze boxes capable of being taken up at will. The crank shaft is forged solid from a billet of nickel steel, the eccentrics being a part of this forging. The cranks themselves are drilled so that they can be tempered to a nicety. This is also true of the wrist pins used in the crossheads. A crank case is provided in which are all the moving parts of the engine, with the exception of the valves and pistons. Owing to the fact that this case is oil-tight and absolutely dust proof, perfect lubrication

Procession of Morgan Trucks.

is assured. At each revolution oil is thrown on every part within the case.

It will be noted, by referring to the illustration, that a separating part has been placed between the crank case and the cylinders. This is provided so that the repacking of the stuffing boxes on piston and valve rods can be readily accomplished. There is another advanage in this construction, in that it is impossible for water to collect in the crank chamber should one of these packings become worn. When repacking is necessary, it will instantly be brought to the attention of the operator by the noise of a slight amount of steam escaping through the packings, and, owing to their accessibility, the fault can be easily remedied without having to remove a single part of the mechanism. The lever controlling the links is at the driver's right hand, so that after starting the vehicle, any degree of cut-off can instantly be put into effect.

Arrangements have been provided for admitting high pressure steam to the low pressure cylinder. When starting a heavy load, owing to the fact that the cranks are set at 90 degrees to each other, it might happen that the high-pressure piston on stopping rested at the end of the stroke. In this case, the small cylinder would be rendered useless; but the large piston would, in a case like this, be in position to receive steam, and this is exactly the thing they are able to do; therefore, they can move the truck at any position of the engine. This arrangement is also used at times on heavy grades when extra power is required.

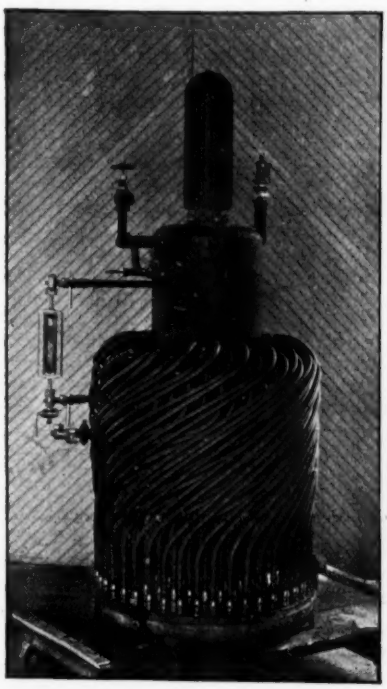
The feed water pump is attached to the engine case and obtains its supply from the water tank under the seat. The tank holds 100 gallons, which is found by repeated trials to be sufficient to steam 25 miles over ordinary roads. A feed water heater raises the temperature of the feed water to 208 degrees, saving 15 per cent of the fuel consumption.

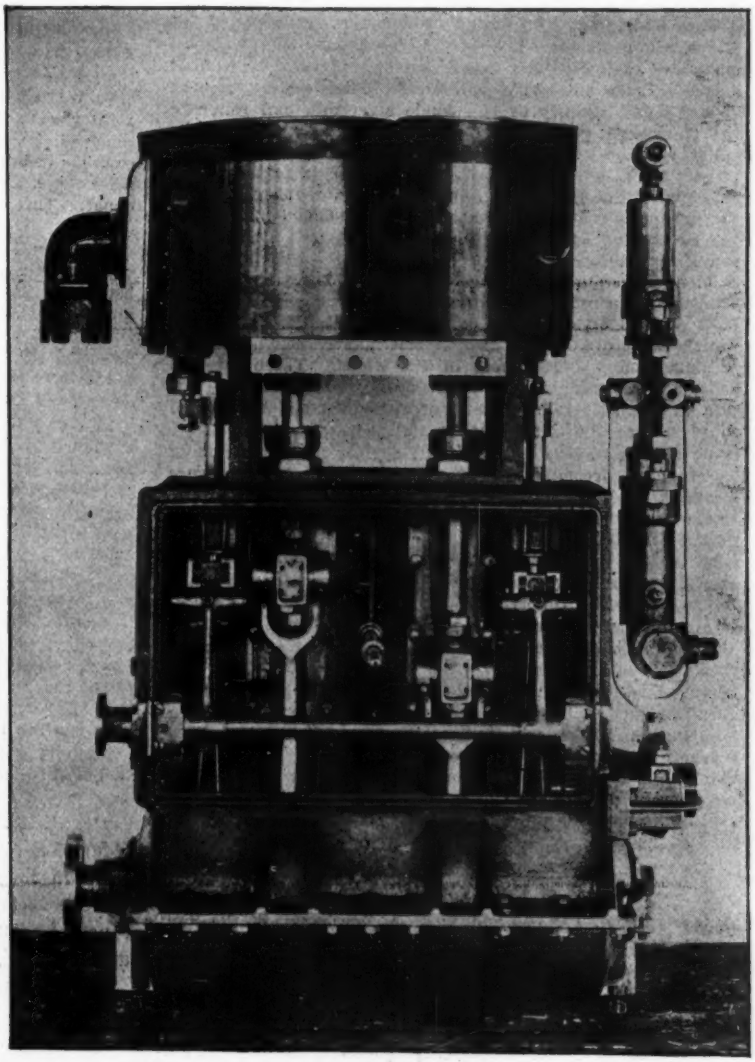
To the engine is attached an air pump of neat design and construction, which by a simple adjustment, maintains air pressure automatically of any desired amount without further attention by the operator. Both the air and water pump are geared to the main shaft of the engine at a ratio of five to one, so that they are slow running. Being of ample proportions they should last indefinitely. No trouble has been experienced with these parts during 4 years of use and 20,000 miles of travel.

It has been found necessary to pump water while standing, and, that this may be done, a standard Worthington steam pump has been provided. It is conveniently located just back of the boiler and under the floor boards upon which the feet of the operator rest. This pump is controlled through a small valve near the hand of the driver. In case of failure of the regular water pump to operate, the feed water may be handled by this pump, so that the journey can be continued without having to make stops to clean out water tanks.

Another feature is the water tank filler, by the use of which the operator is enabled to fill the tank in 8 minutes. This is done by simply attaching a hose with a strainer on the end, which is provided with each truck, dropping it into the water, and opening a steam valve.

A separator built on the centrifugal principle is provided.





THE MORGAN MOTOR COMPANY'S BOILER AND ENGINE.

After the steam has passed through the combined feed water heater and muffler, where it has, to a certain degree, lost its force, and a large amount of it has been condensed, it passes into the separator. Here the steam and water are separated, the water being trapped back into the main tank. Thus a large proportion of the water is used over and over. It might be said that this is rendered possible owing to the fact that the company uses no lubricating oil in its engines. The steam is allowed to further expand in this separator and muffler combination, and, that part of it which is not condensed, is carried by a pipe over the boiler and discharged through a series of small openings. In this way, coming in contact with the waste products of combustion from the boiler, it becomes highly superheated, and on account of there being a small amount of it present the trucks show no exhaust steam.

The kerosene tanks are two in number, of 25 gallons capacity each, and are tested to 100 pounds pressure. They are situated in the rear of the truck, and so placed that they may be filled when the truck is fully loaded. Fifty gallons of oil will carry the vehicle 100 miles.

The brake is so devised that with the ordinary pressure of the foot the truck can be brought almost instantly to a standstill. In an emergency the engine can be reversed, having been designed especially for this hard service.

The underframe of these vehicles is constructed of 4-inch channel steel, but in all cases, and as a special feature of their design, a pair of strong, tubular, longitudinal stays connect the front and rear axles, adding to the strength and rigidity of the whole structure, and relieving the framework of the body of many severe stresses. The boiler is placed centrally in front of the truck, where it is carried by steering wheels. The engine is centrally situated within and attached to the upper channel steel frame. The power is transmitted to the driving shaft by means of beveled gears running in oil tight cases made dust proof, provided with long, white metal bearings. The lay shaft is made telescopic to allow for the action of the springs. The counter shaft carries the compensating gear, and has steel pinions on each end engaging with large, bronze, internal cut gears, fastened to a steel plate, which in turn is made fast to the felloes of the wheel. These internal gears are enclosed with mud guards to prevent grit getting into the teeth. Arrangements are provided on the counter shaft so that the compensating gear may be locked. There is no change of gears for different speeds, the regulation of speed being accomplished by means of the high-pressure steam valves, and when extra power is required high-pressure steam is let into the low pressure cylinder, as referred to in the description of the engine. Extra heavy rear axles with large plain bearings and forward wheels are used, the steering axles themselves being forged from nickel steel.

The control of the truck is simplicity itself. The maintaining of the proper steam pressure, the supplying of fuel and water is automatic. Speed is controlled by a simple throttle. The addition of the reversing lever gives the operator, when maneuvering, ability at all times to go ahead or reverse instantly. Simply closing the throttle and applying the brake, which is easily accomplished and soon becomes a matter of habit with the operator, brings the truck to a standstill. In case of emergency, when there is no time to do this, the reverse lever can be brought into use and the engine, with full boiler pressure behind it, utilized for making quick stops.

Plans of Promoters of Stage Lines

SAN ANGELO, TEX.—Manager J. J. Nussbaum, of the San Angelo Rapid Transit Co., has gone to St. Louis to receive from the manufacturers the company's nine passenger automobiles, built to order.

WARREN, O.—An automobile line will be established between Conneaut and the Harbor.

PUEBLO, COLO.—An automobile line will soon be established between Beulah and Pueblo by Denver capitalists, associated with C. F. Ray and other business men of this city. Beulah is a summer resort and the distance from Pueblo is 28 miles. The promoters of the new enterprise say they can operate it at much less cost than either the electric railroad company or the stage line.

EVANSTON, ILL.—Promoters of a stock company, composed of wealthy Evanston residents, and headed by William S. Lord and David S. McMullin, will start a line of automobiles within a short time on Evanston streets. A number of busses and phaetons will be operated on the principal streets in the central and southern parts of the suburb. Automobiles will run every 20 minutes according to schedule. Evanston capitalists will be asked to subscribe $12,000 in stock.

SANTA ANA, CAL.—As a result of the sale of Newport Beach to W. S. Collins and C. L. Hanson, a line of automobiles is to be put on between Santa Ana and the beach. It is proposed to have the automobiles meet all incoming trains to Santa Ana. The distance is 9 miles, and frequent trips will be made.

PORT HURON, MICH.—It is understood that an automobile route will be established between the Port Huron Engine & Thresher Works and the factories on the Factory Land Co.'s plat. A large automobile will be purchased capable of carrying from eight to ten people and will make regular trips. The traffic between these two points is large.

RED OAK, IOWA.—The one-car mule power street car system of Red Oak is no more. The city council ordered Manager Wallace to take up the track in the streets where pavement was to be put on and he refused. The city thereupon removed the rails. Liveryman Thomas, in lieu of the street car, has ordered a power automobile which will carry twelve passengers, and it will be operated between the city and the depot. The vehicle is to cost $2,000 and will be here by June 15.

ST. LOUIS, MO.—The traffic of the Interstate Transit Co., which operates the automobile 'bus line on the Eads Bridge between this city and East St. Louis, shows another big increase for May. In April the 3 vehicles in operation carried 80,000 passengers, and President L. G. McNair says he expected the record to reach 100,000 for May. Two steam autos have been in operation and are in use now, but have not proved as satisfactory as the electric motors.

TRENTON, N. J.—Two or more of the stage lines will be abolished by the introduction of steam and gasoline propelled automobiles. The first automobile for this purpose arrived in this city recently. It is the property of the Bordentown Mobile & Transportation Co., composed of Bordentown gentlemen. The stage routes to be converted are those from Allentown and from Bordentown to Crosswicks. Four or five trips will be made each day. The rate to passengers will be much cheaper than at present.

AUBURN, NEB.—H. C. Perrin is thinking seriously of asking the city to grant him a franchise to run a pleasure automobile on the streets and to and from adjoining towns. If the franchise is granted Mr. Perrin will put on a vehicle to make trips between the two towns and give pleasure excursions into the country.

ARROYO, PORTO RICO.—Rumor has it that we are to have an automobile line between here and Guayama.

Dr. J. A. Martin, of the Indiana State Soldiers' Home, La Fayette, Ind., writes that he is deeply interested in the formation of a company to run passenger vehicles between the institution and the city, a distance of about 4 miles. The doctor would like to receive details of all suitable vehicles.

It is probable that L. D. Munger's Howard steam racer, which broke down en route to the time trials, will be given a whirl for the record on a selected road near Trenton this week.

ELECTRIC VEHICLE COMPANY WINS SUIT

Court Sustains Elliott Patent on Steering Wheel Suspension in Decision of Great Interest to the Trade

Judge Hazel, of the United States Circuit court for the western district of New York, has handed down a decision in the case of the Electric Vehicle Co. et al. vs. the Conrad Motor Carriage Co. et al. The subject of the litigation was that form of steering wheel suspension commonly known as the Elliott steering equipment, the patent for which was issued to Sterling Elliott in 1890, and was assigned by him to the Electric Vehicle Co. Under Judge Hazel's decree the exclusive right to manufacture and use the invention is vested in the Electric Vehicle Co. and its licensees. Following are the concluding paragraphs of the decision:

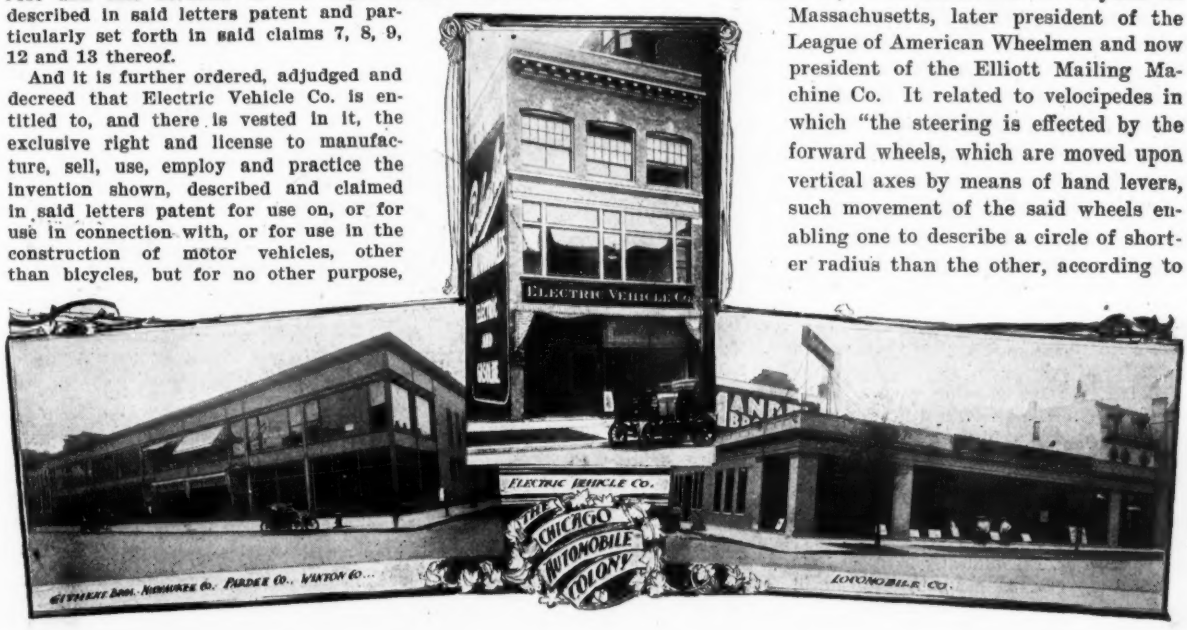
Now, therefore, it is ordered, adjudged and decreed that said letters patent No. 442,663 dated December 16, 1890, and granted to Sterling Elliott for improvements in velocipedes and referred to in the bill of complaint in this cause, are good and valid with respect to claims 7, 8, 9, 12 and 13 thereof; and that the said Sterling Elliott was the original, first and sole inventor of the improvements shown and described in said letters patent and particularly set forth in said claims 7, 8, 9, 12 and 13 thereof.

And it is further ordered, adjudged and decreed that Electric Vehicle Co. is entitled to, and there is vested in it, the exclusive right and license to manufacture, sell, use, employ and practice the invention shown, described and claimed in said letters patent for use on, or for use in connection with, or for use in the construction of motor vehicles, other than bicycles, but for no other purpose, within and throughout the United States and territories thereof to the full end of the term for which said letters patent were granted, as set forth and alleged in the bill of complaint in this cause.

And it is further ordered, adjudged and decreed that the defendant corporation, the Conrad Motor Carriage Co., has infringed said letters patent No. 442,663 and the exclusive rights of the complainants under said letters patent No. 442,663 by manufacturing, selling and using motor vehicles and steering mechanisms embodying and containing the improvements shown and described in said letters patent No. 442,663, and particularly specified in claims 7, 8, 9, 12 and 13 thereof, in the city of Buffalo, in the state of New York, and within the western district of New York, as set forth and alleged in the bill of complaint in this cause.

And it is further ordered, adjudged and decreed that a perpetual injunction be issued in this cause against the defendant corporation, the Conrad Motor Carriage Co., restraining it and its officers, clerks, servants, agents and employees from making, selling or using any motor vehicle or steering mechanism embodying or containing the improvements or any of the improvements shown and described in said letters patent No. 442,663, and particularly specified in claims 7, 8, 9, 12 and 13 thereof, according to the prayer of the bill of complaint in this cause.

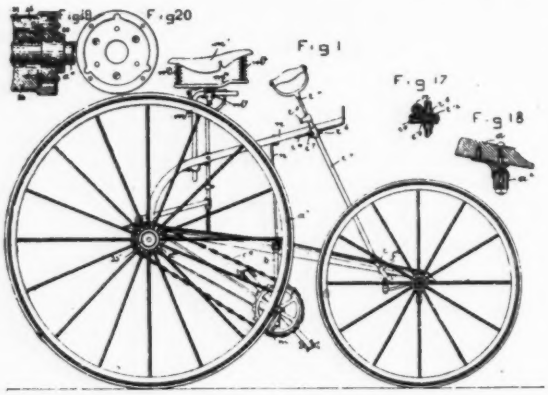
The patent in suit is one of a great number issued to Sterling Elliott, a friend of the Stanleys, of steam vehicle fame, formerly a manufacturer of bicycles in Massachusetts, later president of the League of American Wheelmen and now president of the Elliott Mailing Machine Co. It related to velocipedes in which "the steering is effected by the forward wheels, which are moved upon vertical axes by means of hand levers, such movement of the said wheels enabling one to describe a circle of shorter radius than the other, according to

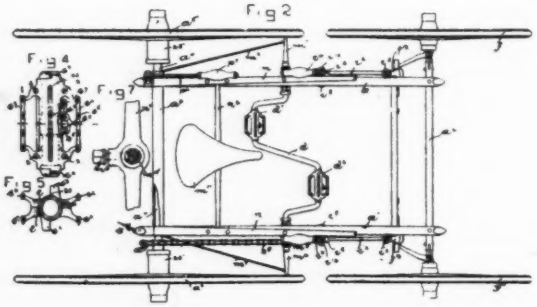


which direction they may be moved, so that in turning a corner the inside wheel may always follow the circular path of shortest radius."

The claims referred to in the court's decisions are as follows:

7. In a velocipede of the kind described, the steering wheels, the pivoted L-shaped levers, upon one arm of which the said wheels are mounted, the other arms of said levers inclining toward each other, as described, and connected together to be moved simultaneously in either direction, and





rotatable steering-handles by which said L-shaped levers are moved, substantially as described.

8. In a velocipede, the steering wheels, and the L-shaped levers pivoted to the axletree a^2, combined with the transversely-movable rod f^2, connecting one arm of each lever, the toothed wheel for moving the said rod, and the rotatable steering handle for rotating the said toothed wheel, substantially as described.

9. In a velocipede, the steering wheels, the L-shaped levers, and the rod f^2, connecting one arm of each said lever and having rack-teeth, combined with two toothed wheels i^1, engaging the rack-teeth, two rotatable rods i^2, and hand pieces, substantially as described.

12. In a velocipede, two L-shaped levers having arms, as 6 32x, for the steering wheels, each having the pintle o^5, turning in the two-armed bracket o, fixed to the axletree a^2, substantially as described.

13. In a velocipede, two L-shaped levers having arms, as 6 32x, for the steering wheels, each having the pintle o^5, having an oil passage o^7, combined with the bracket o, having two arms, between which the pintle has its bearings, one of the said arms having an oil hole communicating with the passage o^7, substantially as described.

When the Morgan company determined to make a truck worthy of public support, it was realized that if lasting reputation was to be the reward, something better than the old fire-tube boiler would be required. Bearing this fact in mind, it brought out a new type of water-tube boiler. The general construction can be seen by the illustration. It is provided with a seamless-drawn, steel steam dome, 14 inches in diameter and 30 inches in length, and with a mud or settling drum at its base, in which removable plugs have been provided for cleaning. The tubes, 120 in number, are attached to the steam dome, as well as to the mud drum, by a special union joint, designed for making the replacement of tubes easy. In case the owner has no separate tubes in his possession, the tubes may be entirely removed, and a plug inserted in the union. The boiler is provided with a superheating arrangement which crowns the steam dome. This heater projects into the stack, and utilizes, to a large extent, the waste gas. It is ribbed inside and out so that the heat collected by the external ribs is very rapidly transmitted to the steam which is being drawn to propel the vehicle.

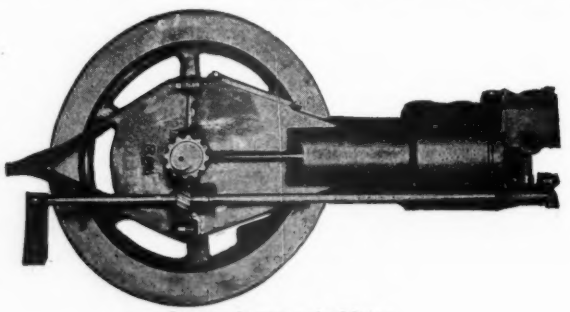
The circulation is very rapid. The company claims to have been able to produce a horsepower with 4 square feet of heating surface. Every boiler is tested to a cold water pressure of 600 pounds per square inch. This does not represent the limit of strength, as it will stand 1,200 pounds without undue stress.

The burner is cast solid of a special metal. It is provided with a regulator whose action is such that steam being raised to within a few pounds of predetermined pressure, the flow of oil is almost cut off, there being just sufficient allowed to flow into the burner to keep it lighted. Should the truck be started and the steam pressure reduced, the regulator will again admit oil to the burner. Steam has been repeatedly raised from cold water to 200 pounds pressure in 20 minutes. Two tanks are supplied, holding collectively 50 gallons of kerosene, which is sufficient for 100 miles.

PARTS FOR A LIGHT RUNABOUT

Dasey Company Ready to Supply a Complete Outfit for An 800 Pound Machine

The call for light runabouts has caused a demand for parts of such machines. The motor shown in the accompanying illustration, in company with front axle with center steering device, rear axle with differential and ball bearing spring blocks mounted, wheels, tires, water and gasoline tanks, four elliptic springs, transmission gear giving two speeds forward and reverse and all the accessories for the engine, including plug coil, batteries, float feed carbureter and muffler, are being



Dasey Company's Motor.

supplied by the P. J. Dasey Co., 19 and 21 La Salle street, Chicago. The engine is of the single cylinder pattern. 4½ by 6 ins., rated at 4 horsepower. The flywheel weighs about 130 lbs. The ignition is of the

jump spark variety, provided with Dow vibrator coil. All engines are tested before leaving the factory. The parts are for a machine to weigh not more than 800 pounds. The front axle is composed of heavy gauge tubing with forged axle end brazed in; forced steering knuckles machined to fit wheels, the spindles being ¾ or ⅞ inch as desired. The rear axle is composed of solid shaft and sleeve, the differential, which is the Brown-Lipe, being keyed on one side to the solid shaft and on the other to the sleeve, thus doing away with the split form of axle and making an exceedingly strong construction. The spring blocks are mounted on ball bearings. Wheels are 28 by 2½, with Fisk or Pennsylvania tires, although others can be supplied on special order. The transmission now being supplied is the well-known Champion, giving two speeds forward and reverse. When on the high speed the gears are not in operation, a clutch being used to lock the whole mechanism to the shaft.

Since the illustration was made the head of the motor has been changed, altering the appearance of the motor, but the essential features of water jacket and large intake and exhaust valves are retained. The intake valves are 1⅝ in., while the exhaust is 1½ in. The crank shaft is 1¼ in. except at the bearings, where it is 1⅜ in. The carbureter furnished with the equipment is the well known Wilcox float feed, constructed on the French principle.

WHITE PREPARING VEHICLE FOR MARKET

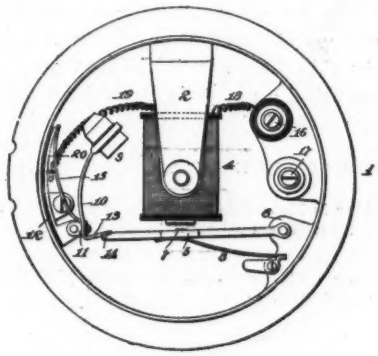
Has Been at Work on Heavy Trucks Since 1897 and Expects to Offer Goods in the Near Future

Paul H. White, of the White Steam Wagon Co., of Indianapolis, referring to a promised description at an early date of his latest production, writes as follows: "We appreciate highly the interest you take in heavy trucks. We believe, with you, that the field is large, but the undertaking of the occupancy of the field, we beg to assure you, is no child's play. We feel that the truck to fill the conditions, has to be one of the most perfect of machines from the outset. We are not allowed the time usually accorded new machines to work into perfection. They must be perfect the first day. This you see, calls for great expenditure of time and money. The writer began planning these vehicles in 1897 and actually began their construction in 1899 and it is within only the last few months that we have begun building for the trade. We do feel, now, that we have a serviceable machine that will earn a good profit on the investment of its owner and will be of little annoyance to him. The largest we have constructed has a platform 19 feet long by 8 feet wide and carries a load of 6 tons at a speed of 6 miles an hour.

PARTS IMPERVIOUS TO MOISTURE

Rousseau's Electric Bells Are Protected by Water Proof Case and Cannot Short Circuit

One of the most annoying troubles experienced by users of electric bells on automobiles is the short circuiting of the current owing to the mechanism of the bell getting wet. In a new bell which has been placed on the market by David Rousseau of 310 Mott avenue, New York, this is an impossibility, as all the parts are inclosed in a waterproof case under the gong and are perfectly impervious to moisture. This bell also gives a much stronger and clearer ring than the old style, a feature due to a new circuit interrupter. In ordinary electric bells the circuit is interrupted before the armature comes in contact with the magnet, losing thereby, it is said, the strongest part of the magnetic attraction. In the Rousseau bell the armature has to come in contact or to a stop before the current is interrupted, causing the hammer to give a very strong blow to the bell. The accompanying cut shows the details of the internal mechanism. The current comes through binding post 16, then to the magnet wire at 18, then out at 19 to insulated bracket 20, which holds the hammer lever 10, then through contact 13 to contact 14 on armature bar 5, so that when the armature bar 5 is attracted and comes in contact with the magnet, the momentum of the lever hammer breaks the circuit, and when the hammer rebounds the contact is again made, causing it to keep on vibrating as long as the circuit is closed, then current goes through pivot 6 to frame on which binding post 17 is connected. By the manner in which the armature and hammer is pivoted, there is a good rubbing contact, which keeps it perfectly clean. Mr. Rousseau is now preparing to market these bells in various sizes from the miniature 2-inch bell to the 18-inch gong.



Detail of the Rousseau Bell.

GOOD JOURNEY ON A NATIONAL ELECTRIC

Men Who Make it Attend a Club Run and Place Forty-Five Miles Behind Them

Indianapolis, Ind., June 7.—Thursday evening of this week the newly organized automobile club of this city helds its initial run to Broad Ripple Park, partaking of supper at one of the well-known summer cottages at that place. In order to convince skeptics that the electric vehicle is not a plaything, suitable only for boulevards and artificial streets, C. E. Test, president, and A. C. Newby, vice president and treasurer of the National Vehicle Co., decided to attend the run with one

of the stock machines. The run was made over the roads leading to this village, a distance of 8 miles from the city, and after returning to the city the above-mentioned gentlemen continued the run to the suburb of Irvington and returned, and when they wound up found that they had covered 49 miles, 26 of which had been over average country roads, with some rather steep grades, the entire course being covered at very close to a 15-mile-an-hour speed. From this run it will be seen that the National electric is a very satisfactory vehicle for short distance country runs and that the mileage obtained from the batteries used by the company this season indicates that purchasers are safe in attempting country runs within a radius of 40 to 45 miles, provided the roads are reasonably good.

TO INTRODUCE THE SALAMANDRINE ABROAD

Famous Boiler is Now Made for Many Purposes and President Goes Abroad to Exploit It

New York, June 2.—O. P. Dorman, president of the Salamandrine Boiler Co. of New York, sailed for England last Wednesday on the Philadelphia. Mr. Dorman will remain away two or three months and during his tour will visit all the principal cities of the continent. While in England he will possibly make arrangements for the introduction of the Salamandrine boiler on the European market, as considerable interest has been manifested in the apparatus by English and continental builders of steamers. The fact that the boiler is being applied to many prominent American makes and is giving complete satisfaction under the most severe conditions is already well known to Englishmen. The use of the Salamandrine boiler is not confined by any means to the automobile field, although its quick and steady steaming qualities make it especially adaptable for this class of work. A MOTOR AGE man who recently visited the company's factory in Newark, N. J., found many boilers in course of construction for launches and stationary purposes.

ELECTRIC BATTERY CO. SECURES INJUNCTION

Buffalo Company Restrained from Selling Porter Batteries Pending the Hearing of Infringement Suit

The suit of the Electric Storage Battery Co., of Philadelphia, against the Buffalo Electric Carriage Co., which was argued about a month ago, has been decided in favor of the former. The court has granted a preliminary injunction restraining the Buffalo company from using what is alleged to be an infringement of the patents of the plaintiff company. The battery in question was the Porter. The question of infringement has yet to be decided and in adopting the unusual course of granting the injunction before trial of the main question the judge said that the decision in favor of the validity of the Brush patent, which is involved in this suit under the pleadings, are so numerous that he could not disregard them and he granted the motion for the injunction on the express ground that the patent has been sustained in all other cases in which the question has been raised. The application for the patent under which the Electric Storage Battery Co. sued was filed in 1881 and the patent was issued in March, 1886.

DAYTON MOTOR VEHICLE CO. SUSPENDS

Receiver Took Possession Last Week of a Business Which Seems to Be Helplessly Involved

Dayton, O., June 2.—Frank W. Howell was today appointed receiver for the Dayton Motor Vehicle Co., under a bond of $20,000. The company was organized under the laws of West Virginia, and has been losing money ever since it began business, in May of last year. The capital stock is authorized at $100,000, of which $69,700 is paid up. The present liabilities are $14,794.50, and the assets not more than $10,000. The sum of $6,000 is due the City National Bank, with I. C. Souders and G. N. Bierce as sureties, they holding a chattel mortgage for this amount on the plant. Mr. Bierce is president of the company. The proceedings were not unexpected. The company has been slow in meeting its obligations and recently made an attempt to secure a better foothold by a change of location to some town which would offer a bonus.

Atwood's Stay-Lit Lamp

The Atwood Mfg. Co., of Amesbury, Conn., has placed on the market an automobile lamp called the Stay-lit.

The Atwood Stay Lit Lamp.

It is a handsome appearing lamp, giving a big, steady flame, which cannot be jolted out. It is strongly riveted and reinforced and is made to meet the requirements of

hard usage. The lamp is built on the principle of a tubular lantern and burns 24 hours with one filling.

Remarkable Service by the Mason Boiler

Appreciative customers are among the best advertisers it is possible for a maker to secure. Mason engines have lately been the means of pleasing at least two users to an extraordinary degree and they have made known their appreciation to the makers, the Mason Regulator Co., of 158 Summer street, Boston. Ray G. Coates, of Los Angeles, has written as follows: "I have one of your Mason engines in Locomobile No. 365, and have made 18 miles per gallon of gasoline on a 60-mile run, and not uncommonly make 15 miles per gallon when the proportion of fuel used for 'firing up' is not very large as compared with the total consumption." Another well pleased man is George Cannon, of the Harvard Automobile Club, whose steam machine was prevented from making a trial at Staten Island by the sudden stoppage of the events. At Charles River Park, Boston, however, he demolished the 5 mile record of 9m. 9 3-5s. by covering the distance in 8m. 26 3-5s., establishing a world's record for a circular track.

Trip Around the World Depends on Auto-Sparker

The Motsinger Device Mfg. Co., of Pendleton, Ind., has been advised that the famous Passe Partout, which started from London a month ago on a trip around the world, is equipped with one of its Auto-Sparkers. Although European houses are ever on the alert to secure the best that comes from America it is a fact that no other device from this side is better known than the Motsinger company's famous little instrument. Panhard & Levassor are the French licensees of the Motsinger company.

Rutenber Company Will Move to Logansport

The Rutenber Mfg. Co., manufacturer of engines, has arranged to move its plant from Chicago to Logansport, Ind., and arrangements have been made with the Logansport Foundry Co. under which, it is reported, complete automobiles will be made. The Rutenber company has erected a machine shop near the foundry and installed about $10,000 of special machinery. This is to be increased as demands require. So far the company has not been able to fill its orders on account of the limited capacity of the works.

New Incorporations and Enterprises

ST. LOUIS, MO.—The Halsey Automobile Co.; capital stock, $30,000, all paid. Incorporators: Oscar L. Halsey, Augustus C. Halsey, Edward J. Snowden.

YOUNGSTOWN, O.—Henry Wick, ex-president of the National Steel Co., it is announced, will engage in the manufacture of automobiles. He has a number of patents under his control and is experimenting with machines before he organizes a company.

PUEBLO, COL.—The latest addition to Pueblo's industries will be an automobile factory. Machinery has arrived for the plant, which will be at once installed at 1023 Abriendo avenue. Kline & Greenwood, of this city, are furnishing the capital for the enterprise. A company will be incorporated. The machine which will be built will be called the Hahn. The factory will occupy 752 square feet and will turn out two machines a week. The company will also probably promote an automobile line between Pueblo and Beulah.

SANDUSKY, O.—The directors of the Sandusky Automobile Mfg. Co. met last week and President R. S. Thomas and Secretary and General Manager F. X. Franz were instructed to purchase forty-three acres of land. James J. Hinde was elected temporary treasurer of the company. As soon as the deal for the purchase of the land is consummated plans for the buildings will be drawn and the contracts let. In the meantime automobiles will be manufactured in temporary quarters.

CLEVELAND, O.—The Cleveland Automobile Co., with $125,000 capital stock, has been incorporated by H. A. Everett and others.

SYRACUSE, N. Y.—The Industrial Machine Co., of Phoenix, has leased the building at East Water and Grape streets and will move here. The company was incorporated 6 months ago to manufacture motor cycles, automobiles and other machinery.

RACINE, WIS.—A plant for the manufacture of automobiles is a new enterprise for Racine which now promises fruition. J. D. Beebe, formerly at the head of the concern which was succeeded by the Wisconsin Wheel Works, is the promoter who is engaged in interesting Racine capitalists to join him in the undertaking. It is not Mr. Beebe's idea to begin on an extensive scale, but to start in a safe and modest way and develop the business gradually.

WICHITA, KAN.—Walterscheid Bros. have started their automobile. This is the first machine of this kind ever built in Wichita and will continue to build them. Their autos are propelled by steam and the engine is of 5-horsepower, and every part of the machine was built in the factory on North Rock Island avenue. The firm will turn out any style of machine that a purchaser may desire, and they now have another machine nearly completed, and automobile building is now a part of their factory.

KALAMAZOO, MICH.—The Kalamazoo Cycle Co. has been experimenting with a small automobile for some time, and has at last perfected it. Mr. Blood, the manager of the company, says that the mechanism is all the invention of the company and that the cost of operation is trifling and the cost of the automobile is about one-half that of the cheapest full size automobile.

UTICA, N. Y.—The Buckmobile Co. is the title of an organization incorporated in this city as a successor to the Utica Automobile Co. The company, which will manufacture a gasoline motor carriage which shall be known as the Buckmobile, elected the following officers: President, A. J. Seaton; secretary and treasurer, A. V. Brower; general manager, W. H. Birdsall. The company will retain both the use of the offices of the old company at the corner of John and Catharine streets and the agency of the vehicles previously handled by the firm. The Buckmobile will be manufactured in the newly erected and fully equipped plant of the company on Sunset avenue, just this side of the West Shore railroad crossing. The building is 100 feet long and 60 feet wide on the ground floor.

SALEM, MASS.—Salem has an automobile making concern of its own in the Puritan Motor Car Co., recently organized with strong financial backing. Albert N. Locke is the president and Charles A. Archer the treasurer. Nathaniel C. Locke was the founder of the Locke Regulator Co. and the father of the president of the new concern. The Puritan Motor Car Co. enjoys all the facilities of the big factory and the genius of the man at its head.

GRAND RAPIDS, MICH.—In a two-story factory building on the river bank Claude Sintz, secretary and projector of the Wolverine Motor Works and formerly connected with the Sintz Gas Engine Co., which removed to Detroit and was merged into another corporation, has already turned out one automobile engine complete and has others in the process of manufacture. At present he is busy installing new machinery and tools and expects soon to be in shape to keep several men building auto engines.

THE PEERLESS CARRIAGE

Cleveland, O., June 9.—The Peerless Mfg. Co. is pushing exclusively the touring car here illustrated. About three are being turned out weekly, and arrangements are being made to increase this capacity. The Peerless car is described in detail for the first time in a new catalogue now on the press. The car has a long wheel base, low center of gravity, with vertical motor mounted in front. The frame is built of channel steel after the style of a locomotive, carrying out the idea that the motor car is a road locomotive rather than a horseless carriage. Both front and rear wheels are pitched inward, after the manner so long in use with all vehicles not run on prepared tracks. The pitch of the rear wheels is made possible by the flexible axle, which also obviates the loss of power by excessive friction when strains of the road tend to throw the rear wheels out of alignment. Motors are of the vertical type, manufactured under patents, with crank shaft and wrist pins running in an oil bath, which automatically lubricates the cylinders and all bearings. Owing to the vertical position of the cylinders all sides are equally lubricated with the piston rings wiping uniformly the entire circumference, thus preventing excessive amount of oil in the firing chambers. Ignition is by jump spark by means of mechanically operated vibrator of original design, which requires no adjustment in months. Circulation is by means of centrifugal pump operated by friction disc against the flywheel. Cooling is by the most effective system of radiating coils at the front of the car and requires only 5 gallons of water. The carbureter is the spray type, with constant level maintained by float.

Starting is accomplished by a half turn of crank, which is placed at the front of the car. The drive is by means of beveled gear attached to the compensating gear, which is part of the rear axle and is perfectly protected from dirt, mud or water.

The speed gear (either friction clutch or sliding gear) is connected with the driving gear by a universal shaft. The gears are enclosed in an aluminum case and run in an oil bath, which automatically lubricates all bearings. The speed gear is self-contained and is connected with the motor by universal coupling, which protects the bearings, gears and clutches from any strain due to inequalities of the road. Change of speed with either style of gear is effected by a single lever at the right giving three speeds forward and reverse with advancement and retard of spark to regulate the speed of the motor.

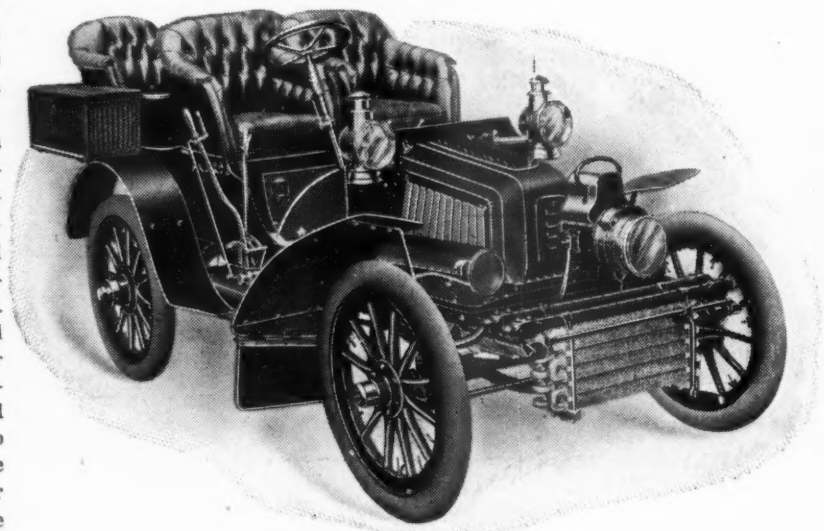
A throttle between the carbureter and motor is operated by a foot lever and is held in any desired position by a notched segment. By means of the throttle the full power of the motor can be varied through its entire range, furnishing a convenient and economical control independent of the change of speed lever or time of ignition. When the friction clutch is used change of speed is quiet, clutches go in without clatter or vibration, and gears operate without noise. It is smooth and positive in action. Clutches are engaged by a single lever giving three speeds forward and one reverse.

The change speed gear of the sliding gear type is engaged with the motor by means of a single cone clutch operated by a pedal; change of speed is effected by a single hand lever, which gives three speeds forward and one reverse. On the high gear the motor is connected direct to the rear axle.

A powerful hand brake on each rear wheel is operated by a lever at the right and held by a ratchet until released. A foot brake operates on a drum between the motor and compensating gear. The direction of the front wheels cannot be changed by contact with obstacles and no shock can be transferred to the steering wheel. By means of a knuckle joint and sleeve the top part of steering column is bent so that there is no difficulty in entering the vehicle.

Electric current, both primary and secondary, is conducted through heavily insulated cable. Artillery wood wheels and clincher tires 30x3½ in. are used. All parts are lubricated by means of grease cups and sight feed oil cups, with pressure pumps on right side of body and on the dash.

Dimensions are: Wheel base, 78 in.; width, 64 in.; length, 11 ft.; height to top of seat, 57 in.; height of frame from ground, 21 in.; weight, 1,700 pounds with tonneau.



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STEEL RIMS

CRESCENT
AND DROP CENTER

FOR WIRE
OR WOOD WHEELS

ANY DIAMETER
UP TO 4 IN. CROSS SECTION

DRILLED OR UNDRILLED
AS REQUIRED

AUTOMOBILE AND CYCLE PARTS CO.
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For Steam Vehicles
Improved—Perfect in Every Way

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Our new One-Piece Cast Burners have been greatly improved both in power and strength. No wedged tubes in its construction. All in one piece and easily cleaned.

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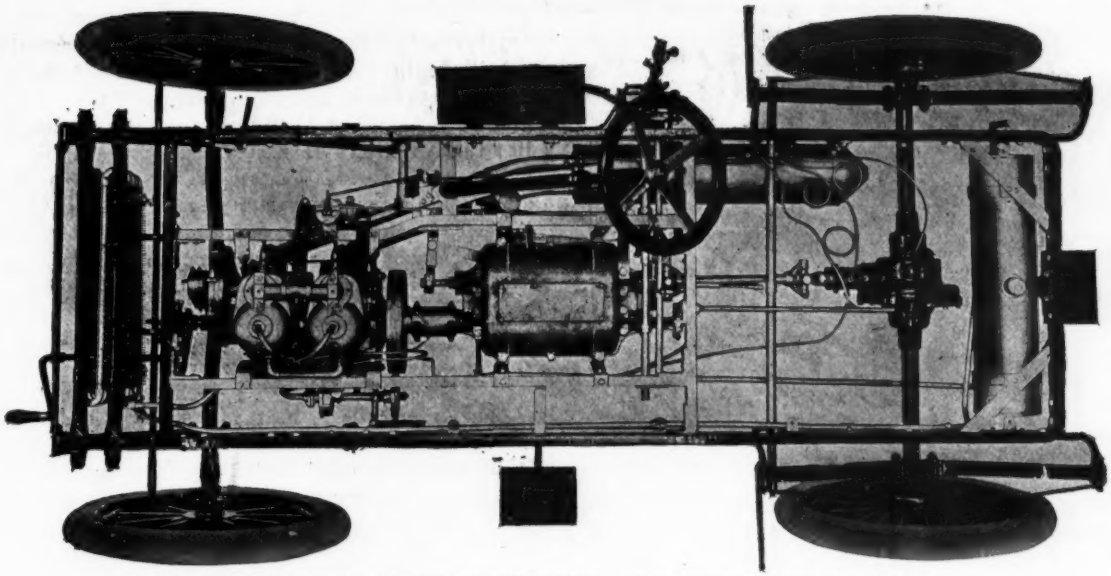
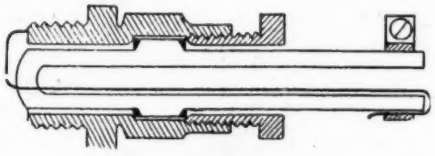


PLAN VIEW OF THE PEERLESS CARRIAGE. (For description see page 18.)

A Transparent Plug Tested in England

The Autocar furnishes details of a transparent plug recently introduced in England. The metal portion of the plug is of the usual De Dion type, the difference being in the insulator used. Instead of the ordinary porcelain plug, the insulator is tubular, in the form of an elongated thimble, one end (the inner) being closed. This insulator is made of a specially annealed fireproof glass such as is used in chimneys for incandescent gas lights and for incandescent electric lamp globes. The high tension wire from the coil is fused through the glass, and is proof against leakage. The wire passes along the inside of the tube and is turned over at the end secured by a clip to the high tension cable. By looking down the tube, the spark can be



plainly seen and tested under compression. The insulator is adaptable to any De Dion plug, and the maker says that he finds the glass is not nearly so liable to harbor deposit as porcelain, nor is it so liable to breakage so long as it is properly annealed. He also says that apart from the flash of the explosion, which, of course, can be seen through the transparent base of the thimble, the spark itself is distinctly visible at 18 in., while the curved end of the glass tube, acting as a lens, magnifies it considerably. When there is no explosion the spark appears as a brilliant blue only, but when a charge is exploded there is, of course, no appreciable interval between the time of spark and the flash of the explosion, but the spark appears a brilliant white, this probably being due to the molecules of gas in the cylinder being rendered incandescent in the path of the spark. The sparks appear more intense than the flash of the exploding gas around it. The maker also finds that the quality of the mixture can be judged to a nicety by comparing the intensity of the explosion flash as sceen with the mixture lever in different positions. One point should be mentioned, as it will at once occur to the user of porcelain plugs that soot on the end of the glass thimble will obscure it, so that the spark cannot be seen. This is true if too much lubricating oil or too rich a mixture be persistently used, but the maker finds the glass soots much less than porcelain, and as the main thing when testing the ignition is to know if the spark passes under compression the plug can always, if necessary, be taken out and cleaned if no spark should be visible.

The commissioners of the District of Columbia will ask Congress to adopt a bill referring to conveyances generally and which makes it necessary to register an automobile, to place a number upon the lamps and the rear of each vehicle, to pay a fee of $2 and to limit the speed to 12 miles an hour. If the regulations in all cities were based on this common-sense arrangement the automobilist would have little cause to complain.

M. Kerneis, 48 rue de la Mairie, Brest, France, has written to the Auto-Velo stating he would like to get catalogues from manufacturers of trucks. He is a large wine dealer and would like to do away with his 8 or 10 horses but up to date has not been able to secure the catalogues of firms having anything he desires.

The formal opening of the home of the Chicago Automobile Club will occur on Saturday evening of this week. The house will be open from 4 to 11 p. m.—and as much later as circumstances warrant. There will be music and the usual accompaniments of an occasion of the kind and the club will be glad to welcome all who are interested in the automobile.

Indianapolis, Ind., Editor MOTOR AGE:—At various periods during the past two years, the automobile buying public have been startled by reading in glaring headlines that Edison, the electrical wizard, had at last perfected the storage battery. We have that great amount of respect for Mr. Edison which is undoubtedly due a successful inventor; his inventions have been so remarkable, and so successful, that anything on which he happens to be working receives through the press unusual attention. In the present instance, the remarkable activity of the newspaper correspondent has worked a serious injury to a well established and growing American industry. We refer to the manufacture of storage batteries, and electrically propelled automobiles. Many of the articles concerning Mr. Edison's battery are quite misleading—having the effect of discrediting the product of the present established manufacturers, and causing prospective purchasers to expect and anticipate something, which, to say the least, is apparently very much in the future. As is well known by all well informed automobile dealers and manufacturers, it is less possible to obtain results from a storage battery, than to read accounts of its performances, which are quite convincing to the purchaser. This was well illustrated on Decoration Day on account of the deplorable accident resulting from the use of one of these freak electric machines. Here was an electric automobile covering a mile in less than a minute—yet the regular goods manufactured by the concern making this exhibit would require considerable in excess of four minutes to negotiate a measured mile.

The batteries used by our concern are manufactured with a view of giving satisfactory daily service at a rate of speed that is useable and safe. In their construction are embodied materials which insure their life and durability. Such reports as are being sent us concerning Mr. Edison's battery do both Mr. Edison and the electric automobile trade an injustice. Mr. Edison is not in a position, as we understand it, to market even one battery—what the future has in store, we are of course unable to state, but we think, in justice to a vast and important industry, trade papers and automobile press generally, should give actual facts and inform the trade of true conditions. Our concern will welcome any battery, made by anyone, that gives in actual test a mileage in excess of that now obtained from our present equipment, but we certainly feel that it is due present established business to inform the public that Edison's batteries are as yet a name only, and various attempts on the part of automobile manufacturers to obtain batteries for use in their wagons have been fruitless. While Mr. Edison undoubtedly is obtaining additional fame, it is at the expense of industries that really deserve, at least, better treatment at the hands of both the daily and trade press.—National Vehicle Co. Thos. J. Hay.

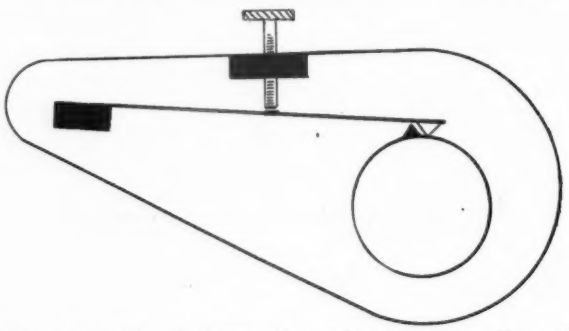
Wants Instructions How to Build

Ann Arbor, Mich.—I propose to build a 12 or 15 horsepower gasoline machine and am in a quandary about the best engine. Kindly give names of engines suitable for my purpose. Also those of transmission gears. Where can I get a good publication on these matters? Where can I get designs of bodies suitable for gasoline machines?—H. W. McClun.

The Reutenber Mfg. Co., room 1104, 184 La Salle street, Chicago, can provide the engine required, the firm making four-cylinder engines of all powers. The Champion Gear Co., 479 Hancock street, Brooklyn, and the Upton Machine Co., 17 State street, New York, can supply the transmission. The C. J. Moore Mfg. Co., Westfield, Mass., can provide body of the tonneau or phaeton type. MOTOR AGE can supply "How to Construct a Gasoline Motor Vehicle," price 50 cents, or "Self-Propelled Vehicles," a splendid work, covering the subject thoroughly, for $5.

Primary Circuit Breaker is at Fault

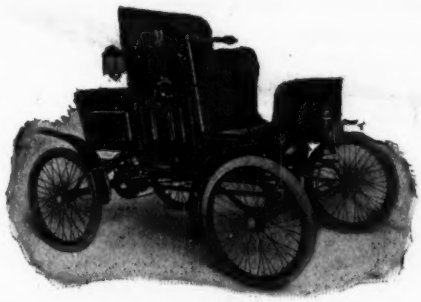
Burlington, N. J.—I have a 3x3 motor. I have tried two sets of coils and vaporizers on it. It has a tight piston and valves with good compression. It will run about 1,000 revolutions per minute but will miss about one or more every three explosions. I have a two-point



vibrator with platinum tips. One set of coils and vaporizers was from the E. R. Thomas Co. and worked well on the motor. Its speed, however, should be 1,800 per minute. It will start nearly every time on the first revolution. Could you refer me to a company that would make a coil to order?—A. L. Hilaman.

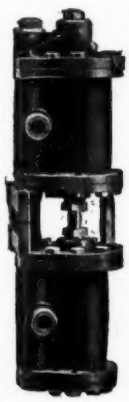
The trouble is evidently in the primary circuit breaker and if the sketch accompanying the letter is interpreted correctly one of the points attaching to one of the

The Victor Steam Carriage



The First Steam Carriage to finish in The Automobile Club of America's 100 mile Non-Stop Endurance Run, completing the run without a penalized stop. Gasoline consumed, 10½ gallons; water, 84¾ gallons.

The Victor Steam Pumps



Size, 9 in. x 3 in.; weight, 4½ lbs.

Capacity of Air Pump, 80 lbs. pressure on tanks or tires.

Capacity of Water Pump, 3 gallons per minute against 200 lbs. boiler pressure.

PRICE, $30.00 EACH.

These pumps have been adopted by the Locomobile Co., the Mobile Co., and other leading manufacturers of steam carriages.

The Victor Grade-Meter

The grade is shown by the location of a bronze ball running in a graduated concave tube filled with spirits.

PRICE, $1.25, POSTPAID.

OVERMAN AUTOMOBILE CO.

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WHERE ROADS ARE ROUGH !
WHERE ROADS ARE SMOOTH !

No up-to-date bicycle of high degree can be considered complete without the

HYGIENIC CUSHION FRAME.

It is a source of comfort to the rider, profit to the dealer; satisfaction to all concerned. It is a guarantee of a high-grade bicycle —none of the cheap kind have it. :: :: :: :: It absorbs vibration, lessens fatigue. It does not change the distance between saddle and pedals, and, therefore, does not interfere with speed. :: ::

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St. Paul Bldg., New York

HOME OFFICE: Philadelphia

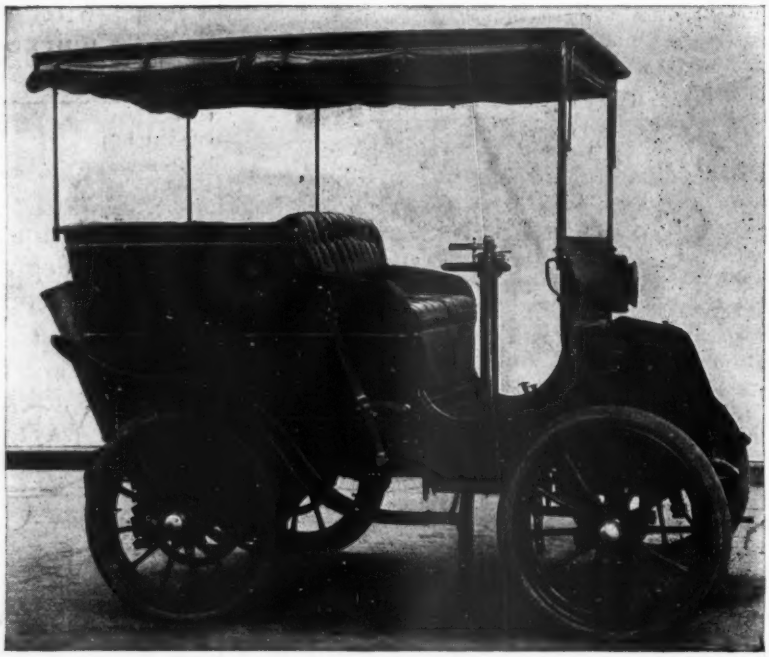
THE BRAZIER TOURING CAR

Beats Them All
In Comfort and Durability.

We know what it will stand, so guarantee a maximum figure on the repairs :: :: ::

Heavy Busses and Business Wagons built to order; some now under construction ::

We handle Experimental Work.



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THE BIG HIT OF THE AUTOMOBILE SHOW

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ON ONE CHARGE
OF GASOLINE

Most Liberal Terms to Agents.

Spaulding Automobile & Motor Co.
63 Chandler St., Buffalo, N. Y.

wires is in contact with the trembler during the revolution made by the cam and is only cut out when the vibrator drops into the notch to make connection with the lower terminal of the same wire. Try one point of contact and instead of mounting it below the vibrator reverse its position and set it above, making a raised portion on the cam to replace the depression. This will provide a positive make and break each revolution and one which when adjusted properly will never miss. It will make little draft on the battery, in comparison with the present requirement, if our deductions are correct. Try the new form before going to the expense of getting a coil made to order. No reason is assigned for securing a new coil. With the addition mentioned it is likely the motor will run its full speed unless there is a weakness elsewhere. The Thomas equipment is first class and is in use successfully on hundreds of machines.

Steam Cars and Kerosene Burners for South Africa

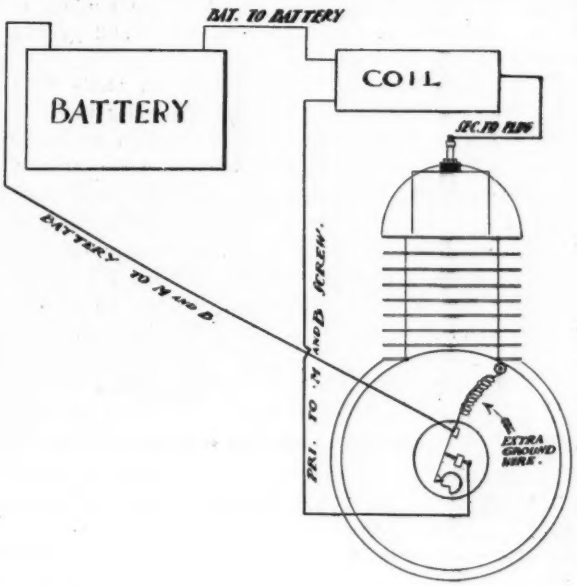
Port Elizabeth, South Africa, May 4.—Editor MOTOR AGE: As this country settles down after the war there is sure to be a demand for motor carriages and public service vehicles. To our mind, one of the main difficulties will prove to be the trouble experienced even now in the importation of stove naphtha or gasoline. We are importing this from New York by steamer, paying freight at 115s 6d ($27.75) per ton of 40 cubic feet (deck cargo rate). With duty and other charges added, the landed cost is about 50 cents per gallon.

By last mail our New York agents informed us they were experiencing considerable difficulty in making shipment, one of the steamship lines, Hansa, refusing to ship gasoline at any rate. If this is going to be the policy of the shipping companies there will be little scope for the automobile out here. It may, however, provide an opening for the introduction of a good steam car using kerosene as fuel, for there is no difficulty whatever in obtaining kerosene at any town or village in the country. Can you recommend any such car?—A. Hargreaves & Co., Limited.

To Insure Successful Ignition

Guinda, Cal.—In regard to the motor bicycle questions I wrote a few weeks ago and which you kindly answered, I would say that I thought probably the compression was too high and so took your advice and bought a large coil, but to no purpose, for it short circuited just in a few trips of the vibrator. Now I am completely lost, as I do not know where to look for the trouble. I have had parties who have had considerable exprience in the gas engine line look the machine over, but they could not find anything wrong. The company which made the wheel says I must have it connected up wrong, but I can see but one way to connect it if a person follows the marks on the coil. I have tried five or six coils of one prominent make, which have all broken down with just a few miles run. The last one did not run at all. I test them as follows: By putting the plug on the engine and tripping the circuit breaker with the fingers. I have all the connections clean up and in good shape and am at loss to know what causes the coils to break down unless the coils were all defective, which would hardly be the case. I have had considerable experience with gas engines and understand the construction of the coils fairly well, but I cannot find the cause of this. Will you kindly help me in your next issue? If there is any one who reads the MOTOR AGE who can assist me I will consider it a favor.—G. A. Wells.

This letter relates exclusively to the coil and gives no information regarding the remainder of the motor and parts, so we take it for granted the writer has



looked into the matter thoroughly and found the trouble to be, without question, in the coil. Hence we give the accompanying sketch, showing how a three-terminal coil, with one battery, one primary and one secondary wire, should be attached. In the first place, as all the coils mentioned in Mr. Wells' letter are made with two battery, two primary and two secondary terminals on the inside, three must be grounded inside the case and the remaining three brought out. In this way the three circuits must have a common ground, else successful ignition cannot be obtained. In the illustration the battery terminal leads to the battery direct, the primary to the screw on the circuit breaker and the secondary to the plug. To complete the battery circuit the remaining battery wire must ground on the other electrode at the make and break, or if that is not insulated from the engine, then on the engine at any convenient point. With the completion of the battery circuit the primary is also completed and when that is accomplished the secondary will also have been grounded through the primary. If there is any doubt about the grounding of the primary through the circuit breaker, lead the battery wire to the trembler, as shown, and then lead another short coiled wire to a ground on the engine—this to insure perfect connections for all three.

It is altogether improbable that any such number of coils would short circuit on one machine under proper treatment. It is possible to ruin the insulation on any coil by using a battery in which the amperage and voltage are too high, but that is evidently not the cause of trouble in this case. It would be advisable to take the matter up direct with the makers of the coils. They will certainly repair defective parts and may give advice that will be of value in the future.

Weight of Water Per Horse Power

New York.—Will you kindly inform us how much water per horsepower the best automobile engines of today use in 3, 5, 7 and 10 horsepower and greatly oblige.—Sartus Ball Bearing Co.

The only official tests that have been made were with the standard 2½ by 3½ engine, generally rated as 4 horsepower, and showed the consumption to be 90 pounds of water per horsepower hour. On others of the same size the consumption has ranged as high as 127. These tests were made with the tubular type of boiler, in which an extremely large number of flues were used and cannot be said to be favorable to the engines. One maker claims to have reached 75 pounds. See report of New York test, page 2 of this issue.

Trouble Probably Due to Clogged Pipes

Council Bluffs, Ia.—A few days ago we were out with our Locomobile, having been about 8 miles in the country; returning was down grade most of the way. When within about 2 miles of the city we noticed the steam going down, but as there was an inch or so of water in the glass we supposed something was the matter with the fire. We stopped and shut off the fire, then proceeded to examine things, having an eye on the water glass all the time. As that showed the same amount of water all the time, we could come to no other conclusion than that something was wrong with the burner. One of us started the hand pump to put more water in the boiler, while the other started the fire, but just as the fire got started the bottom of the boiler gave out. We came home the usual way—behind a hayrack, much to the amusement of the small boys. At the shop the regular thing was done to repair the boiler, but when the fire was started again it gave way as before. The repair man said the bottom of the boiler was softened so that it would not hold the tubes. He then heated it red and allowed it to cool, which hardened the metal so it would hold the flues all right, after which it was tested to 300 pounds cold water. The repair man said the boiler was as good as new. We having been using it ever since with the usual amount of steam and it seems all right. Do you think the boiler will be of use any length of time and what trouble may we expect different from that already experienced?

What caused me to write this was an article in the Motor Age of April 23 in reference to a trap. A short time ago we placed in our carriage a Locke automatic water level regulator and in connecting it the original pipe from the top of the boiler to the water gauge was bent so it formed a trap, but as the regulator did not work right, we had it cut off and were supplying water the old way. How much do you think this trap had to do with our accident?—J. B. Atkins.

There is no reason why the boiler, which seems to have been handled by a good repair man, should not continue to render good service for a while. Burned boilers are liable to occur on any machine, even when driven by the most experienced operators. If attention is paid to keeping the machine clean and the pipes free from sediment there will be small danger from burned-out boilers. Where ¼-inch fittings are used care is more essential, for they clog readily. It is good policy to blow the boiler off each day and to use a boiler compound that will keep the boiler free from scale and sediment. It will be found that where separate pipes are used to connect the water glass, water column and regulator much better results will be obtained than if all are attached to the pipes leading to the boiler. These pipes should be at least ½ inch and lead directly to the boiler in such a way that no traps can hinder free circulation. If a trap is formed and water is carried into it sediment will also find its way there and eventually clog the pipe. The bend in the pipe mentioned may have caused this condition, or it may be that the feed pipes were of insufficient size.

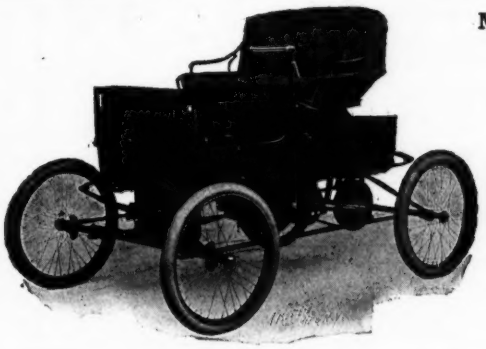
In answer to a recent query regarding the makers of railway motor tricycles Motor Age finds that Fairbanks, Morse & Co., Chicago, are the manufacturers of the cars used on the Southern Railway system as engineers', roadmasters' and supervisors' inspection cars. The information is furnished by John Rathburn, connected with the railway company.

Omaha Club Plans An Active Season

Omaha, Neb., June 6.—The Automobile Club of Omaha has been formed, having headquarters at Omaha, and embracing South Omaha, Council Bluffs and contiguous territory. The charter membership contains thirty-five names, and additional members are being enrolled daily. At the last meeting of the club, the following officers were elected: President, A. I. Root, Omaha; vice president, J. T. Stewart, Council Bluffs; secretary, Dalton Risley, Omaha; treasurer, Dr. P. F. Straub, Ft. Crook; directors, A. I. Root, J. T. Stewart, D. Risley, P. F. Straub, E. W. Lamoreaux, E. H. Packard, T. B. Lacey, H. K. Van Brunt and F. N. Connor; road officers, H. E. Fredericksen, captain; A. K. Detweiler, lieutenant. Several club runs have been scheduled, among others a weekly run to Fort Crook, a distance of 14 miles each way, where a band concert and refreshments will add to the pleasure of the trip.

Catalogues and full price lists of everything in the automobile line are desired by G. C. Hamilton, 240 Ocean street, Woollahra, Sydney, Australia.

THE ORIENT RUNABOUT



MODEL 1902. 8 H. P. PRICE, $875.

Powerful, Practical and Reliable.

All ordinary hills can be ridden on the high speed without the use of gearing. Speed controlled from 4 to 25 miles per hour, simply by pressure of toe on the throttle. Will climb 25 per cent. grade with two persons. :: :: :: :: :: :: ::

Write for Catalogue. **Agents Wanted.**

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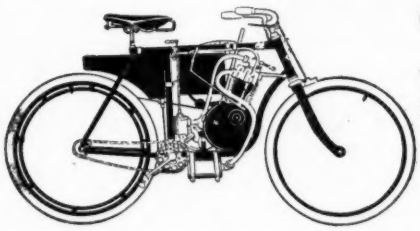
WALTHAM, MASS.



ORIENT MOTOR BICYCLE

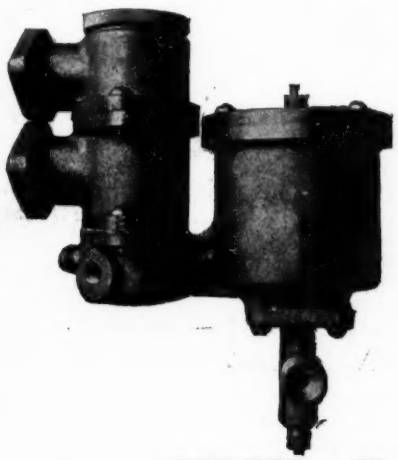
PRICE $250.00

Fitted with the New Orient 3 H. P. Motor.
Speed over 40 miles per hour.
The Most Powerful Motor Bicycle in the World.
Write for particulars. Agents wanted.

WALTHAM MFG. CO.,
WALTHAM, MASS.

ASK "DASEY" IF IN NEED OF PARTS.

$12.50 ...FOR THE NEW WILCOX... FLOAT FEED CARBURETER



You will notice **there are no levers** for governing, hence no confounding the operator—no waste of time in looking for trouble in the carbureter when none can exist. It's a time saver, a labor saver, and what is more important still—a money saver.

When once regulated for a given size Engine it is settled for all time to come.

Our price is right. If you can use them in quantities and are looking for the **best obtainable** our manufacturers' prices will astonish you. :: :: :: Dasey Porcelain Spark Plugs, ½-inch size—the kind that work all the time—no short circuit here, $1.75 each.

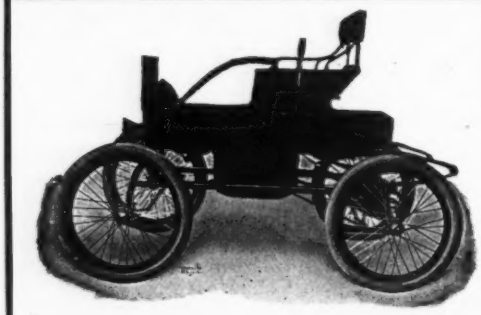
GET WHOLESALE QUOTATIONS.

THE P. J. DASEY CO.
19-21 La Salle St., - - - CHICAGO, ILL., U. S. A.

THE BAKER

IF IT'S A BAKER IT'S THE BEST

The Most Efficient of all Electric Vehicles



THE LIGHTEST WEIGHT
THE STRONGEST MADE
THE BEST FINISHED

We will send you a Catalogue, or we will write you. Address

The Baker Motor Vehicle Co.,
CLEVELAND, OHIO

1902
Kelly Adjustable **Handle Bars**

STANDARD BARS OF THE WORLD

No. 3 Arms, Regular Stem.

No. 5 Side Arms,
1 in. Forward Extension.

No. 4 Racing Arms,
2½ in. Forward Extension.

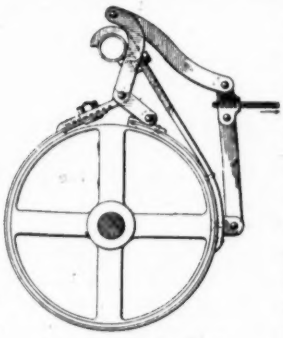
It will pay all manufacturers these times when competition is hot, to see that their wheels are equipped with just the attachments demanded by the rider. Every rider knows the merits of KELLY BARS, as they have been for the past six years the most popular and foremost sundry in the cycle trade.

THE KELLY HANDLE BAR CO.

CLEVELAND, OHIO, - - - - - U. S. A.

Late Issues From the Patent Office

No. 699,860, to Paul H. White, of Indianapolis, Ind., assignor to White Steam Wagon Co. The subject matter of this patent is a frame for heavy vehicles. The leading feature is the method of supporting the forward portion of the body, whereby allowance is made for the fire box to be dropped below the bottom of the body, so that the boiler may not project too far above the body. A rectangular steel frame is supported above the front axle by two semi-elliptical springs located transversely of and near the ends of the axle. On opposite sides of the frame and in the longitudinal center line of the vehicle are upwardly projecting lugs to which are pivoted lugs depending from the body. The central portion of the axle is dropped and the boiler and fire-box is secured to the body in such manner that the fire-box hangs below the body and within the rectangular frame.



Letts' Vehicle Brake.

No. 699,726, to Frederick W. Turner, of Cambridge, Mass., covers a condenser for steam vehicles which comprises a number of horizontal tubes arranged in front of or in place of the usual dash. The marked feature of the device is the method of supporting the pipes at their ends. Vertical sections of channel steel are secured at their lower ends to the body and the ends of the several coils of tube are received in the channels.

No. 699,808, to William Norris, of Preston, England, assignor to T. Coulthard & Co., of same place. This patent covers a number of features of the Coulthard vehicles. The principal points covered are a bearing adapted to support the gear shafts in such a manner as to allow of considerable twisting of the framework of the vehicle without detrimental effect to the shaft and gearing, a system of spring connection between the driving and driven shafts and a triangular driving attachment secured to the road wheels. The bearing is of spherical pattern and comprises a divided ring whose inner surface is flat, while its outer surface is convex and knuckles into corresponding recesses in the bracket and cover. The spherical ring is allowed a slight movement along the shaft and is held in place by distance rings of rubber or other suitable elastic material. The spring drive is by means of helical springs, which act as the driving connection between the differential gear and the divided axle. The third device covered is a triangular steel frame, bolted to the rim of the driving wheel and to which the sprocket or gear wheel acting as the driving medium is secured.

No. 699,962, to Ellsworth M. Letts, of Waverly, N. Y., covers a brake designed mainly for use with a truss axle of the pattern in general use in steam vehicles. It is so clearly shown in the accompanying illustration that nc description is necessary.

No. 699,994, to Paul H. White, of Indianapolis, Ind., covers a wheel for extremely heavy vehicles. The hub, spokes and rim is a single steel casting and the tire is composed of a number of sections, also of steel, which are riveted to the rim.

No. 699,995, to George E. Whitney, of Boston, Mass., assignor to Whitney Motor Wagon Co. The subject of this patent is a roller-bearing cross-head for steam engines, particularly those used for automobiles. The roller feature comprises two wheels, which are journalled on the ends of the wrist pin and roll in ways provided in the engine frame.

No. 700,151, to William H. Muzzy, of Dayton, Ohio. This patent covers a motor bicycle in which the marked feature is the location of the crank-shaft, which is concentric with the motor-shaft. This of course necessitates a divided crank-shaft and the two parts are held in proper relation to each other by a system of gears comprising a pinion on the inner end of each part of the crank-shaft and two pinions rigidly secured on the ends of a sleeve surrounding and rotatably journaled on the wrist pin. The motor-shaft is tubular and the crank-shaft passes through the bore therein. The connecting rod is journaled on the sleeve surrounding the wrist pin between the gears above mentioned. By means of this device a very neat appearing machine could be constructed, but owing to the great number of parts moving in relation to each other the friction and resultant wear would be excessive.

No. 700,175, to Charles Cotta, of Shannon, Ill., covers a motor vehicle construction wherein all four wheels are used for both steering and driving and the specifications and claims are devoted to the somewhat complicated mechanism necessarily incident to that style of construction.

No. 700,209, to H. J. Lawson, of London, England, assignor to Chas. R. Flint, trustee, of New York, N. Y., covers the details of the three wheel vehicle known as the Trimoto and at one time put on the market by the Cresent sales department of the American Bicycle Co. This machine was not particularly successful and is no longer on the market.

No. 700,241, to William J. Robb, of Portadown, Ireland. The subject of this patent is an international combustion engine with a variable compression. The cylinder and appurtenances are longitudinally movable in relation to the crank-shaft and in this manner the capacity of the compression space is varied. An odd feature of the device as described in the specifications is that a variable cutoff to the inlet is provided which practically annuls the action of the variation of compression. The inlet valve is operated mechanically and as the cylinder is moved in the direction of the crank-shaft, which would tend to increase the compression, the duration of opening the inlet valve is reduced and the charge of vapor is consequently reduced. One of the last clauses of the specifications states that the valve cam is so graduated that the amount of charge admitted to the cylinder will always bear the same proportion to the capacity of the combustion chamber, whatever the position of the cylinder be relatively to the crank-shaft.

No. 700,489, to D. H. Hayward, of New York, N. Y., covers a cushion wheel composed of an outer or tire member and an inner member comprising the hub spokes and felly. The outer member is of substantially channel section with the open side inward. A solid rubber tire is seated on the outer face. The inner member of the wheel is seated within the channel and between the outer face of the inner member and the bottom of the channel is a flexible inflatable tube. To all practical purposes this device differs from that covered by the patents of the Wheel Within Wheel Co. in matters of detail only.

Nos. 700,514, 700,515 and 700,516, to George S. Lee, of Hawthorne, N. J., are assigned to the Wheel Within Wheel Co. and cover in detail the cushion wheel mnaufactured by that company.

No. 700,450, to C. M. Spencer, of Windsor, Conn., relates to a running gear for automobiles. The object is to so arrange and connect the parts of the running gear that the reaches will be supported directly by the rear axle and indirectly by the front axle on the spring that supports the front end of the body and thus retain their shape and remain in alinement regardless of the raising or lowering or tipping of the front wheels. In the embodiment of the invention the reaches project forwardly from the rear axle and terminate just back of the front axle, where they are united by an upwardly expending yoke that is pivotally connected with the top of the elliptic cross spring that supports the front end of the body. Flap vertically yielding brace bars extend from the reaches back of the middle forwardly to the outer ends of the front axle in such manner that the ends of the front axle and the front ends of the reaches may move vertically independently of each other, but cannot move independently in a horizontal plane either longitudinally of the running gear.

New York, June 8. — The programme of events announced by the Metropole Cycling Club for its great invitation meet at Manhattan Beach on June 21, for which tens of thousands of tickets are to be distributed by manufacturers, dealers and members, promises a memorable afternoon's sport worthy of the record-breaking crowd that, it is expected, will view it.

The races will be: The Orient, for novices at a quarter mile; the Yale, 5-mile amateur open, with prizes aggregating $130 in value; the Columbia, 2-mile amateur handicap, with a motor bicycle for first prize; the Seaside dash at a third of a mile, with a flying start, for professionals; the Metropole handicap for professionals at 5 miles with $200 added, beside the entrance fees at a dollar each, and the great Atlantic invitation paced race, in which four of the fastest pace-following cracks will be invited to compete.

BALD A COMPETITOR AT VAILSBURG

Was Placed on Scratch But the Long Markers Made Things too Warm for the Old Timer

Newark, N. J., June 8.—Eddie "Cannon" Bald, champion of 1897, 1898 and 1899, after an absence of two years from the track, began bicycle racing in earnest again at Vailsburg this afternoon. He had a few evenings before ridden fifteen miles in a 25-mile race at New Haven for a training spin, but that hardly counted.

Today he was placed, as was his due, on his re-entry on scratch with Kramer and McFarland in the five-mile handicap. A stiff gale was blowing, and Collett and Fisher constituted the only "steps" up to the main bunch. Bald did his share of the scratch trio's pacing nobly, but a gale was blowing and the long markers set a cruel pace against it. At a mile and a half they began to shake him, but he plugged in for a mile before he was forced to quit. Eddie was always more of a sprinter than a plugger. The short sprints and the hard work of the national circuit will suit him better, and his fighting and sprinting qualities should win him more place money and his head work an occasional first place.

Johnny Fisher, of Chicago (100), made a great run in the last lap from the middle of the bunch and led into the stretch amid great excitement. Kramer, with McFarland and John Bedell (200) hooked on, pulled him down at the tape in 11:03 2-5. Kramer won the half-mile open, with John Bedell second, Fisher third and Collett fourth, rather a surprise so far as the place money went.

Thirty-eight amateurs started together on a rolling start in the two-mile amateur open, the pistol firing for the actual start after one lap had been ridden. Hurley at once rushed for a good place among the leaders so as to avoid pockets and spills, and, taking the field on his wheel the last lap, won in 4:37 2-5, with Bellington second and Gus Welsing third. Harry Welsing got lost in the ruck, or it might have been one, two, three, four for the New York Athletic Club. The lap prize was won by E. Staucher, of Rochester.

Hurley won the half-mile handicap in 1:00 2-5. He had caught and passed the field before a lap was run. Harry Welsing (10) was second and Rettler (35) was third.

LITTLE FRENCHMAN PROVES A TARTAR

Proves too Much for Freeman, Who Tries to Give Him a Start and for Leander in Even Race

At the Baltimore coliseum on the 3rd Howard Freeman essayed to give De Guichard, a French rider, 16 years old, who had been in America only ten days, a start of three laps in a 10-mile race, to be ridden in three heats. In the first heat he gained half the distance and in the second was only a lap ahead at the finish. Both men were favored with as much pace as they could stand. Tenzler and Blanchard rode De Guichard's pacer. Both are big men, and their motor being bulky, greatly aided the foreigner. Fred Sinclair and A. A. Zimmerman were up for Freeman.

Freeman shot to the lead, making the first mile in 1:28 3-5, the second in 1:26 1-5, and the third in 1:28, and it seemed that he would make good on making three laps. After the fourth mile De Guichard trailed him without losing greatly. Freeman seemed to realize that he could not make up the handicap.

In the second heat Freeman had a shade the better of the start, but did not shoot far ahead as he had in the first heat. He made the lap on the last lap of the race, finishing in a whirlwind of excitement and passing De Guichard on the last turn, the Frenchman having lost his pace in the grueling. The first ten miles were made in 15:03 3-5 and the second ten miles in 14:47 4-5.

Two nights later the little Frenchman beat Leander in two heats. In the first mile of the opening heat both men lost their pace in their frantic endeavors to gain the lead. The Frenchman passed Leander on the second

THE SUPERIORITY OF THE MORROW

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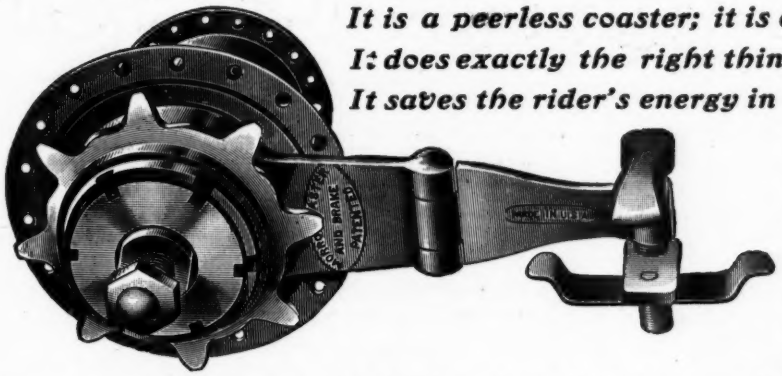

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It does exactly the right thing in exactly the right way.
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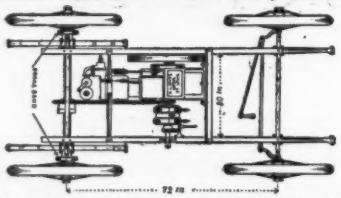

Top and plan view. Showing manner in which engine, etc., is mounted,

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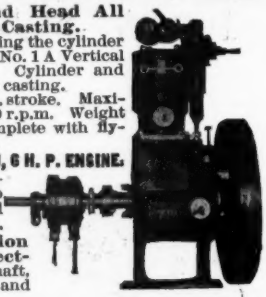

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with transmission giving two forward and reverse speeds.

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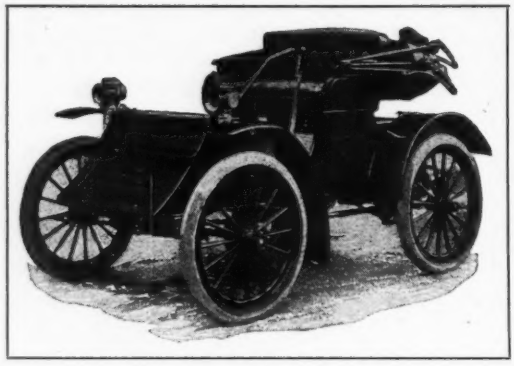

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lap and then lost his pace, giving the Chicagoan a chance to regain the pole. In the second mile Leander's motor went wrong and before another could be substituted he had ridden two laps unpaced. De Guichard meantime experienced a lot of difficulty in regaining his pace, which gave Leander a chance to finish first in the third mile. At the first turn of the first lap in the sixth mile the foreigner went to the front after an exciting sprint and help the lead all the way around, gradually opening the distance between himself and opponent. On the eighth mile he succeeded in lapping Leander amid a burst of enthusiasm from the spectators. The midget went right ahead and at the tenth mile had increased his lead to a lap and a half when the gun announced the finish of the race. The distance was ridden in 16:44 3-5.

Both motors worked splendidly in the second heat and the start was almost perfect. The Frenchman had the pole and around the first lap led by half a length. Leander, in an attempt to pass the little fellow, lost his pace, and the foreigner went to the front, lapping his opponent on the first lap of the second mile. He was riding splendidly and finished ahead by three and a half laps in 15:47 2-5.

MOTOR CYCLE CLUBS ARE PROSPERING

New York Has Two, One of Which Held a Long and Successful Run on Decoration Day

New York, June 8.—Motor cycling is being given considerable impetus here by the organization of two clubs. Each has an enthusiastic membership and club runs keep the fever high. The Alpha Motor Cycle Club, of Brooklyn, had a tour on Decoration Day. On May 30 fourteen made the run to Philadelphia, where the night was spent. The following day they ran to Atlantic City. At this point ten survived. On the 160-mile run home on Sunday five reached New York that day.

The Motor Cycle Club of New York has completed its organization and has twenty members on its membership roll. A run was called for Long Island today. The Century Road Club Association has established a motor cycle division which, in charge of a special committee, has independent runs further and faster than the parent body.

Preparations for the motor-cycle run of the Metropole Cycling Club between Boston and New York on July 4 and 5 are progressing satisfactorily. Local committees are being formed to manage matters en route. Graded awards will be made based on a percentage plan.

California Cycle Trade Association

While many eastern dealers wavered for a time, and questioned the stability of the cycle trade, California's men were up and doing, never losing faith for an instant. The result is that business on the Pacific coast has been good all through the period of inactivity in other parts of the country. The dealers of Boston, Detroit, Minneapolis and other cities have formed local associations which have, beyond all doubt, done good work. The California men have done better. They had local associations in 'Frisco and Los Angeles but about six months ago called a meeting which was attended by dealers from far and near, to organize a state association. The result is that the good work carried on by

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PAST CALIFORNIA STATE CYCLE BOARD OF TRADE
JOSEPH HOLLE
PAST SAN FRANCISCO CYCLE BOARD OF TRADE
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PAST CALIFORNIA STATE CYCLE BOARD OF TRADE

other associations locally is done, in California, in all parts of the state. There are regular meetings of the executive committee to take care of matters requiring immediate attention and once a year there will be a general meeting which, if the first was a fair sample, will be well attended and of great help to the business.

Remarkable Records in Pacific Coast Race

San Francisco, Cal., June 4.—The Bay City Wheelmen held a record-breaking race yesterday from San Leandro to Haywards over the 5-mile course. It was one of the best events held in California for some time, as twelve of the riders broke the American unpaced record for the distance. Simmons made the phenomenal time of 10m. 56s. The winners in this event will compete against a picked team of the Capital City Wheelmen at Sacramento on June 8. Long broke his wheel, but finished within record time. The times made by the riders were as follows: Pelleterrie, 12:23 4-5; Phillips, 12:18; Fleming, 11:45:4; Bridgford, 11:22:1; Ward, 11:21; McLaughlin, 11:19:2; Gray, 11:20:4; Duvall, 11:20:3; Simmons, 11:56; De Mara, 11:02:3; Russac, 11:04; Newsom, 11:10:3; Long, 11:40; West, 11:12.

Ellegaard's Great Day in Paris

At the meeting at the Princes track, Paris, on May 18, the Dane won the two most important events, simply running away from Jacquelin and Lawson. Of the latter. who finished second in one heat and last in the two others, little is to be said. He is either not yet in form or he is not the equal of the fast riders of Europe. In the tandem race, after winning his heat with Rutt as team mate, Ellegaard again finished first, defeating with ease the Jacquelin-Vanden Born and the Gentel-Louvet teams.

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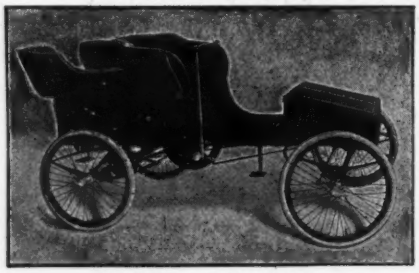

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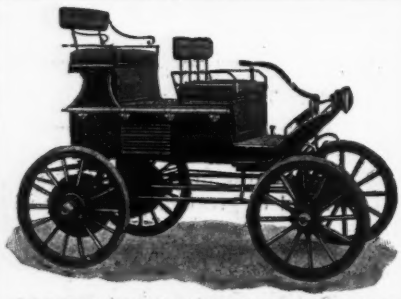

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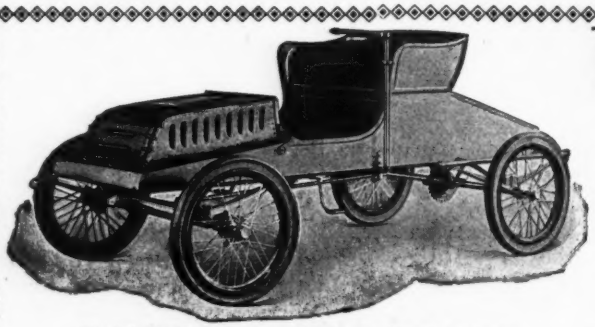

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Judge Hazel of the United States Circuit Court, Western District of New York, on June 5th 1902, handed down a decision enjoining the Buffalo Electric Carriage Company from using the batteries manufactured by the **PORTER BATTERY CO.**

THE CASE WAS DEFENDED BY THE PORTER COMPANY THROUGH ITS COUNSEL, MESSRS. BANNING AND BANNING OF CHICAGO.

THE ELECTRIC STORAGE BATTERY CO.

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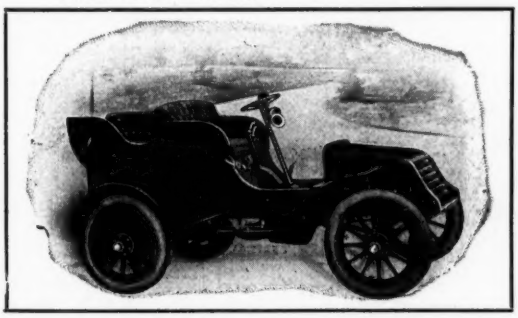
AMERICAN CHAMPION

The following from the New York Mail and Express, dealing with the May 31st speed trials on Staten Island, tells the story of a pleasing victory:

"The Winton Touring Car upheld its reputation by easily beating the American record for the mile. There were three foreign machines in this class, which was for gasoline cars weighing between 1,000 and 2,000 pounds, yet the American evolved a winner by many seconds. The time was 1:17 3-5 for the mile."



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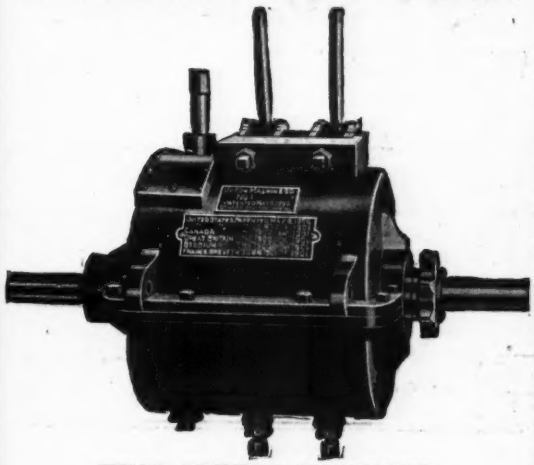

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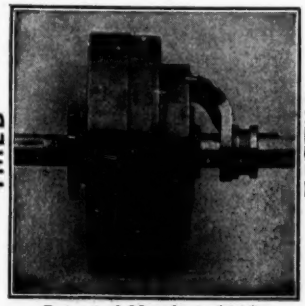

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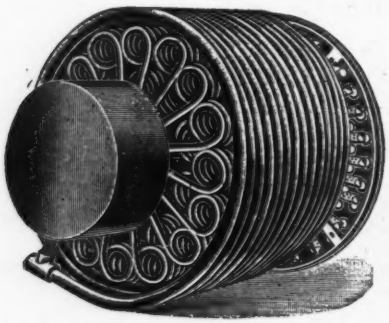

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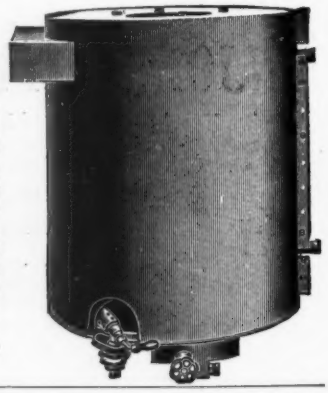

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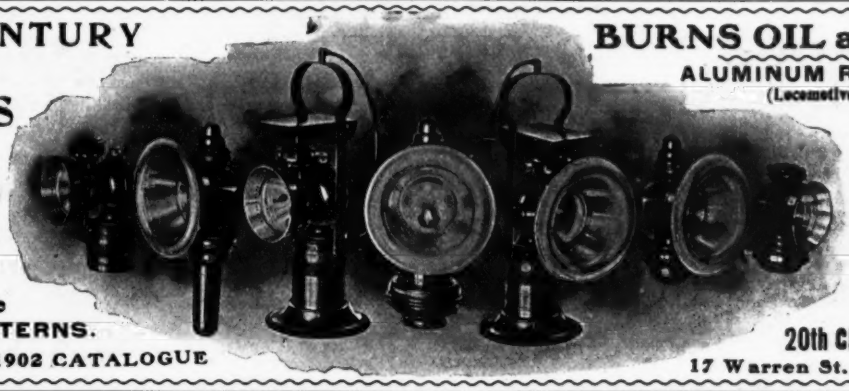

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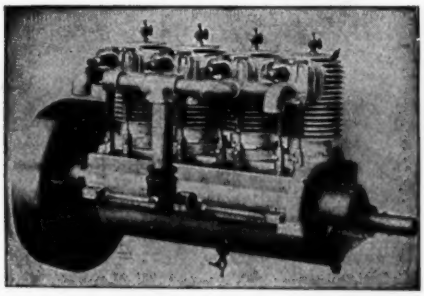

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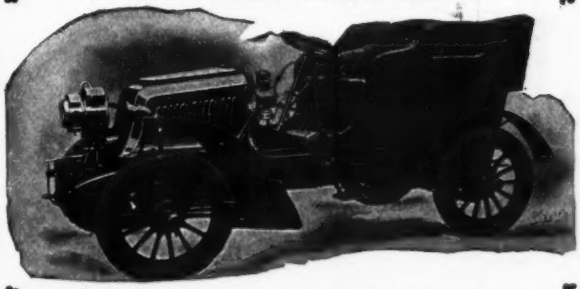

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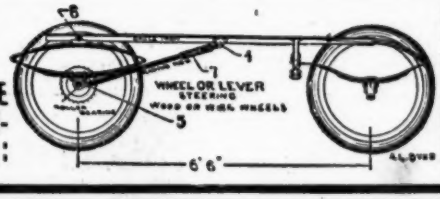

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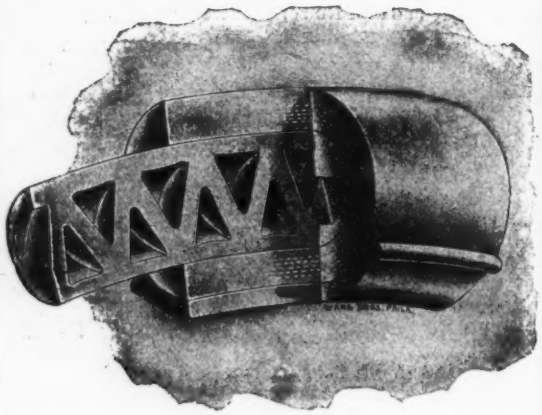

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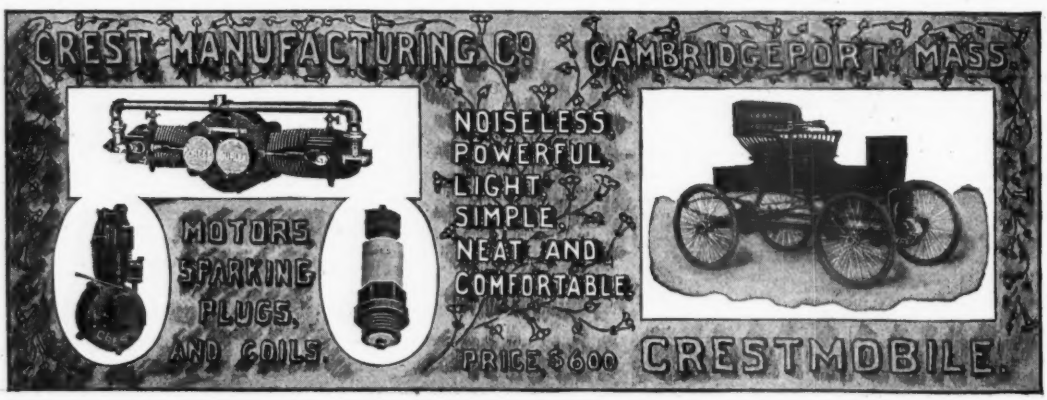
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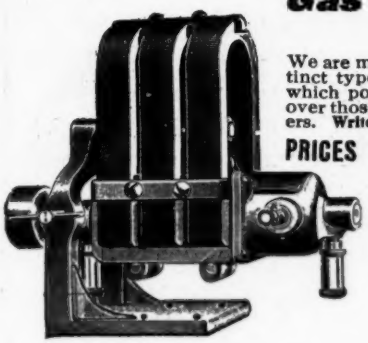

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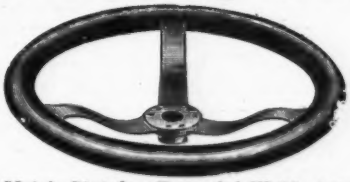

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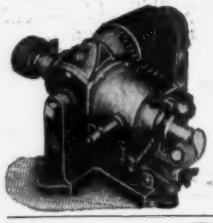

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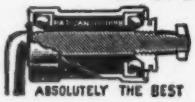

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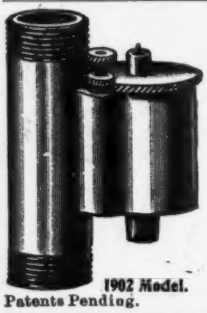

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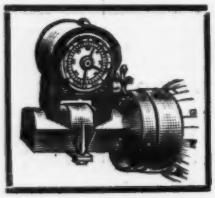

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